

MILITARY REVIEW



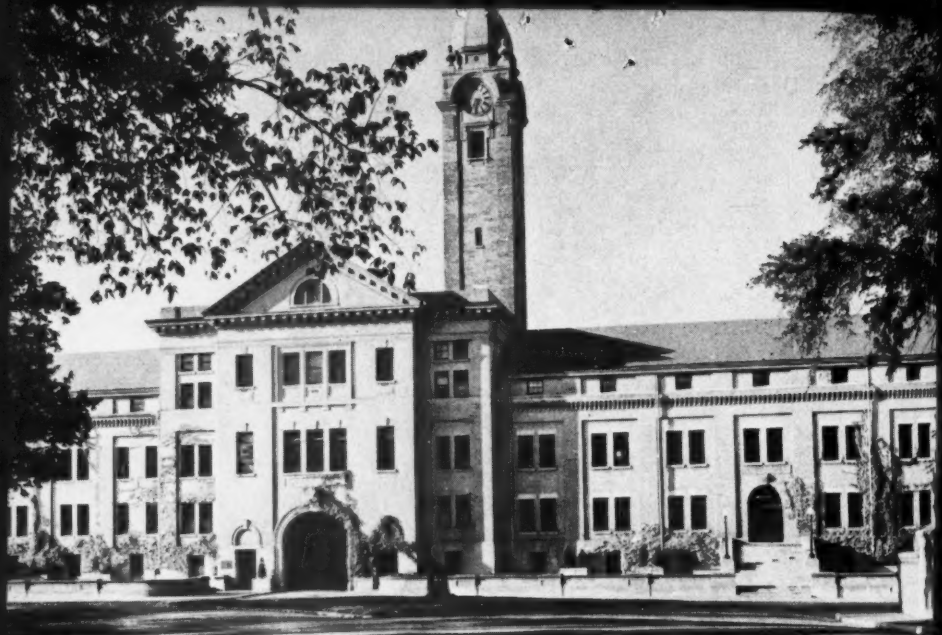
COMMAND AND GENERAL STAFF COLLEGE

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COMMAND AND GENERAL STAFF COLLEGE

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REFLECTIONS OF A G1

Colonel John A. Gavin, *Infantry*
G1, Academic Staff, Command and General Staff College

The author of this article previously served (1946-48) as an instructor in the School of Personnel, Command and General Staff College. His purpose in writing this article has been to point up certain areas in the personnel field which he feels have needed staff or command attention or emphasis. His comments are based primarily on personal observations of the application of G1 doctrine as experienced in the field both as a personnel staff officer and as an infantry regimental commander in Korea. Accordingly, the views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

MOST personnel problems can be solved satisfactorily by the simple application of common sense reasoning to meet situations at hand. Unfortunately, our officer corps possesses this faculty in varying degrees, and sometimes poor judgment is used in rendering decisions, resulting in frustration and disillusionment to the personnel affected. We must constantly endeavor to uphold the dignity of the soldier as an individual, and to preach the doctrine of the "human touch" whenever possible. All that our soldiers ever ask for is fair and just treatment and understanding. Our enlisted man by and large is in-

telligent and resourceful and recognizes promptly any vacillating or bluff on the part of his leader.

Strengths, Records, and Reports

The reports control exercised by the comptroller notwithstanding, there exists today in our Army a requirement for units of company size to render voluminous reports (not all G1 in nature) to higher echelons. The company commander is constantly harassed to meet deadlines in submitting these reports. In an attempt to resolve this problem, higher echelons should make every effort to render required reports based on data already available, phoned in, or secured by staff visits. Before devising a new report form, the staff officer should examine carefully its impact on the office required to submit it; moreover, he should ask himself: "Is there any other source which can give me the needed information such as the machine records unit?" or "Can I get this data by phone?" Let us avoid the easy way out to "pass the buck" to the already overburdened company commander.

In connection with reports of G1 interest, the importance of prompt and accurate casualty reporting to avoid public censure and the combat efficiency aspects of the personnel daily summary and its essentiality in combat should be emphasized.

The trial "packet" (four-man) shipment of replacements recently instituted by the Army Field Forces at Fort Dix, New

Although the G1's best efforts may be thwarted by high command, it remains his duty to strive to place before his commander valid recommendations designed to improve all aspects of personnel management

Jersey, is a definite step in the right direction. This subject must be thoroughly studied and explored. It is only logical that men who enter the service together, train together, eat and sleep together, and establish lifelong friendships during basic training—all point to the conclusion that these same men should fight together also. Men abhor being treated like pawns on a chessboard, and rightfully so. Of course, there are limitations on the extent to which this policy can be applied.

First of all, as a nation, the United States has a limited manpower pool on which to call; combat rotation complicates this problem; further, we must not lose sight of the political impact of sending all the men from one geographical area within the United States to the theater suffering the highest casualties. All of these factors must be considered in respect to high-level replacement planning. However, within the framework of the Army replacement system, we should point our guns toward movement of replacements to overseas theaters by *groups* instead of individuals insofar as may be practicable. By so doing, we will reduce immeasurably an existing morale problem of the lonely individual replacement who feels that he is forgotten.

Next in importance is the type of wel-

come the replacement receives at his ultimate destination. The "personal touch" by commanders at division, regimental, and battalion level cannot be overemphasized. Each commander should greet every group of replacements under all circumstances, inform them that at long last they are *home* and are now a part of the "Blank" Division (Regiment) (Battalion)—the best one in the Army. It pays huge dividends in the long run. A commander must caution his subordinates to forestall as much as possible the scare stories so frequently generated and, in some cases, "dreamed up" by veterans for consumption by new replacements.

Replacement Orientation

Proper orientation training in rear areas prior to sending new men into a fight is a prerequisite for the conservation of manpower. Under no circumstances should replacements be assigned to units in close combat or about to enter close combat. A unit's experienced junior officers and noncommissioned officers should give these men a down to earth, intensive short period of training involving lessons learned and peculiarities (enemy and terrain) of the theater.

In the 7th Infantry Division in Korea, many replacements claimed that they learned more in a week's orientation training than in all basic training in the United States. Although such unsolicited statements were unquestionably exaggerations, it nonetheless pointed up the value of such training and its favorable impact on the morale of new replacements. The orientation training was conducted normally by the reserve regiment and not by the replacement company of the division. The basic factors which determined this were: economy of personnel; availability of equipment such as tanks, mortars, and other weapons; and close supervision by senior commanders.

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Discipline and Law and Order

In many places it appears to be common practice to require unit commanders to report what action they intend to take on routine military police reports. This should not be necessary. After all, the unit commander's responsibility for discipline is well spelled out in the *Manual for Courts-Martial* and he has been given the power to administer punishment within specified limits. He knows his men well and should be delegated authority commensurate with his responsibilities. In recent years, the Army has tended to relegate the company commander to the role of an insignificant link in the chain of command. This is an unhealthy situation. We must re-establish the prestige of the company commander as the "Ole Man" (this goes for key noncommissioned personnel also). These individuals either should be required to pull their weight in a unit or be eliminated or reduced.

In the combat zone, perhaps the biggest headache in this field is in the administration of courts-martial cases *expeditiously*. In combat, witnesses become casualties; and indigenous personnel involved are sometimes difficult to locate as units are on the move constantly. Native police must be exploited to the maximum to hold natives for questioning or to locate witnesses in the towns and villages. Some trials in Korea dragged on for months simply because timely investigations were not made.

Another point that I feel strongly about concerns the soldier who deliberately shoots himself to avoid combat. It is always a "nice, clean wound" and he is evacuated to a comfortable bed in some hospital in the rear. These cases are most difficult to prove as the man concerned invariably claims he was cleaning his weapon, or that the weapon was discharged accidentally. It constitutes a formidable morale and disciplinary problem. Moreover, such cases are promptly

evacuated to the rear which hampers adequate investigation. A finding of "not in line of duty" even when evidence points to the guilt of the soldier is, in many cases, ruled out as it is construed that a reasonable doubt exists. This challenging problem must receive the careful attention of all G1s and commanders concerned.

Prisoners of War

In the event of a global war, United States forces must be prepared to handle large numbers of prisoners of war, among whom will be communistic-indoctrinated leaders. This establishes requirements for prompt and proper screening procedures to segregate such leaders, and for adequate facilities for handling thousands upon thousands of prisoners of war. These factors will assume utmost importance in the requisite prior planning needed to meet the gigantic problem involved, and to avoid providing our enemies with a propaganda weapon which may mitigate against our interests.

Burials and Graves Registration

Considerable importance must be placed on the need for command attention in relation to all graves registration activities. In the first place, it is a "hot potato" to commanders because of the adverse family reaction to any failing in the handling and disposition of their son's, brother's, or husband's body and effects. This is also true in respect to accurate casualty reporting wherein check and double check must be the rule. If these activities are mishandled in any way, the Army at large is placed automatically in a bad light, and censure is most certain to follow. There has been a tendency among some commanders to place the weak or inexperienced officer in the role of graves registration officer, and then to make his duty in this job a secondary one. This is a fallacious practice and may have most disastrous results. In one case known

to the author, the graves registration officer told his enlisted assistant to make the decision of what constituted valuable effects of the deceased. The assistant proceeded to destroy, by burning, such items as family pictures, personal clothing, and trinkets. This was another case for the Inspector General. The respect for our honored dead is so dear to the heart of every American that there is no acceptable excuse the Army can offer for any omissions or errors in connection with the handling of its dead. This point must be hammered home by commanders at all echelons.

Morale and Personnel Services

This subject is perhaps the most challenging one charged as a staff responsibility to G1. It not only cuts across the entire scope of all G1 activities, but is influenced by everything the leader does and says which affects his men. In a combat outfit, morale is a barometer of its will to fight and to get the job done. After all, that is the sole reason for the unit's existence. Our soldiers fight well only when they have unit *esprit* and the will to win. What are the contributing factors toward attaining this goal? They are simply fair and just treatment and consideration by their leaders, and mutual confidence and respect between leader and soldier. I have yet to be convinced that our soldiers fight to preserve democracy, contain communism, or for some other ideological objective. The American soldier fights for his squad, his platoon, and his company—the best of its kind in this man's Army and he will tell you so. As a sidelight on this point and to reinforce it, the personal observations made by an observer on a junket trip to Korea, for the purpose of escorting two visiting dignitaries on a round robin visit to hospitals, are significant. Patients asked this observer repeatedly such questions as: "Colonel, how is the 1st Cavalry doing?"

or "Where is the 31st now?" or "How can I contact my buddy in the 17th?" or "I got hit when our battalion knocked the enemy off Hill 999." These soldiers were more concerned about their units and buddies than their own wounds.

General Ridgway promptly recognized a morale problem the first week he took over command of the Eighth Army. He had heard some grumbling among the troops. A questionnaire was sent to all units down to platoon level asking them what they needed and were not getting. Most of the replies complained of such things as a lack of chocolate bars in the ration, that they had not received any beer lately, and that the B ration was too monotonous. Corrective action was taken immediately on all three counts and morale went up 100 percent. The *human touch* in leadership scored again.

The prompt receipt of mail has a direct bearing on unit morale. In the early days of Korea, the Army Post Offices (APOs) of some units were changed frequently which resulted in excessive delay in receipt of mail. Men will always worry when they do not hear from home, and many would prefer receiving mail to eating. Personnel officers must be constantly on the alert to detect and correct any unnecessary delays in forwarding mail to combat troops.

Poor Morale

Among the indicators and causes of poor morale in a unit, the following are considered pertinent:

1. Self-inflicted wounds.
2. Decorations awarded to undeserving individuals.
3. Lack of a fair and just promotion policy.
4. Lack of prompt action on battlefield appointments.
5. Poor discipline (including supply discipline).
6. Excessive number of trench foot cases.

7. Lack of moral courage to relieve inefficient leaders.

8. Poor unit messes.

9. Inadequate special services support (compared with other units in same area).

No attempt has been made to compile a complete list—the field is wide open. Fairness is perhaps the key word to the solution and reinstitution of high morale and *esprit*—fairness in assignment policies, rotation, leave quotas, allocation of replacements, assignment of tasks to units *ad infinitum*. Men immediately sense the unfair, the undeserving, and the arbitrary, and the inevitable results are reflected in their attitudes and actions.

Military Government

While current doctrine in the field of military government is primarily (and necessarily so) directed at techniques and procedures to assist in winning the war, so to speak, more attention should be paid to "winning the peace" insofar as the subject of military government is concerned. In every war of the past, the Army has had to meet the challenge of occupying and administering belligerent territory and its peoples after hostilities are over. This is a vast and complicated business entailing most careful detailed planning. Although it is, in fact, a problem for the Department of State, the Army usually is given the job.

As a case in point, the author recalls the time when the Fifteenth Army occupied that area of Germany formerly known as the Rhine Province at the close of World War II prior to turning it over to the British and French authorities. Out of the blue, a G5 section arrived for duty at the army headquarters. Its members were experts in various fields such as monuments and archives, fiscal, water supply and utilities, repatriation, and many others. When this section attempted to operate, it found that many of its functions paralleled those assigned to

other staff agencies. It knew what had to be done but not how to get its job accomplished expeditiously. The army commander promptly broke up the section and assigned its members to the various technical, administrative, and general staff sections as advisers, with the exception of two or three officers who remained in G5 to render required technical reports to higher headquarters. High-level decisions were needed to guide the army in its new mission of occupation. Displaced persons were the biggest problem—hundreds of thousands of them had to be fed, clothed, and administered. It would appear desirable, therefore, that high-level policies to guide the planning of military commanders for occupation duties be promulgated and announced by the proper authorities *well in advance*.

Personnel Procedures

Insufficient emphasis is placed on the importance of the personal *interview* aspect of placing the right man in the right job. Normally, at training centers or at division level, this is accomplished by some noncommissioned officer who, although possibly qualified, questions the new man only superficially about his background and awards him a recommended military occupational specialty (MOS). With this in mind, it is proposed that unit commanders (particularly on the company level) further interview all new men assigned to the unit with a view of determining the detailed case history in each instance. Many times the interviewer on the higher level will base his recommended MOS on the man's most recent job in civilian life. The unit commander, on the other hand, may find out that the man occupied another position formerly which fits him into a job vacancy. Perhaps his hobby will prove to be the determining factor in his ultimate assignment.

Another weakness in our system which prevails on occasion is the malassignment

of school trained specialists. Sometimes these men—who are always in short supply—end up in jobs which have no bearing whatsoever to their specialties. G1 should cast an ever watchful eye on this matter to circumvent such occurrences, and report such personnel to higher headquarters for disposition if he cannot use the services of specialists properly.

Military Occupational Specialties

Perhaps the greatest misunderstanding throughout our Army in regard to the term "MOS" is its intended use and application. Many officers have vociferously cursed the term MOS ever since its adoption. These same officers, for the most part, sincerely believe that the MOS was designed to tie the hands of unit commanders to the extent of making them place the men in the jobs called for by the MOS and *to keep them in those jobs*. Nothing could be further from the truth. The MOS was designed merely as an administrative tool to guide personnel officers in making an intelligent disposition of newly assigned personnel. Once the man arrives at his unit, regulations clearly indicate that the unit commander has authority to initiate action to award a new primary or potential primary MOS or award him a secondary or related MOS. Sometimes a board action is called for to accomplish the above. The main point to be emphasized is that the unit commander has, in fact, the freedom of action to place the right man on the right job. Our soldiers should be encouraged to obtain as many MOSs as possible, as they are indications that these men can perform varied tasks, and hence are capable of supervising the work of others.

Officer Assignment

There exists a need for a critical analysis to be made of existing procedures and practices concerning the assignment of officer personnel in the Army. The problem

is created by the plight of the line officer who is subjected to the decisions of career management, as compared with officers of the technical and administrative services whose new assignments are dictated, for the most part, by their chiefs of service. On one hand, we have the more or less arbitrary assignment of officers, while on the other, we have the assignment "within the family" approach. Although a line officer has the privilege of writing individually to his career management representative, seldom is he able to ascertain anything very definite concerning his career very far in advance. Conversely, the technical and administrative service officer is kept informed by his chief of service of his projected assignments even to the extent of receiving an unsolicited letter which not only offers him a type of job but sometimes a choice of station assignment. This disparity is entirely erroneous.

The same consideration should be given to each officer regardless of branch, when the matter is of such vital personal importance to the officer concerned. A solution to this problem is to centralize the assignment of all officers within one agency of the Department of the Army; in other words, to take away the assignment prerogative of the chiefs of the technical and administrative services. The former positions of Chief of Infantry and Chief of Artillery should not be reconstituted. Again, fairness is the key word. The proposed centralized agency could then assign officers to overhead jobs, schools, faculties, duty with civilian components, and similar assignments on a fair and proportionate basis wherein the interest and needs of the service as a whole will override the interests of a particular branch of service. A continuation of the "within the family" approach is strongly urged except that it be extended *across the board* to officers of *all* branches of the Army.

Interior Management

All G1s should cast a jaundiced eye on attempts at "empire building." It is human nature for individuals placed in positions of responsibility to endeavor to surround themselves with as many assistants as they can get away with. It results in a slow down of work because each subchief will normally devote too much time bucking papers back and forth, and any additions to a staff serves to add burdens to the administrative work load. "Leg-work" and phone calls on the part of staff officers should be encouraged to obtain concurrences whenever possible. All offices should be streamlined to the maximum extent consistent with getting the job accomplished.

Summary

The preceding comments have attempted to set forth certain problems, principally in the field of personnel, which the author feels are in need of attention or emphasis. A G1 of any command echelon, if he is worth his salt, must recognize the fact that he is dealing with policies which affect human beings. Accordingly, he must evolve policies in the name of his commander which are *fair* and *just* to all con-

cerned, and make certain that these policies are carried out to the letter. It is the G1's job to ensure that:

1. The purse strings, personnel-wise, are held tight—that manpower is conserved to the maximum extent possible.
2. All policies promulgated are fair and just to the command as a whole.
3. Replacements are handled properly, with due regard to upholding the dignity of the individuals concerned.
4. Military justice is administered effectively.
5. Proper techniques and procedures are employed in all matters related to burials and graves registration, particularly in respect to *prompt* and *accurate* casualty reporting.
6. Corrective action is taken immediately to resolve problems of poor morale within a subordinate echelon.

In conclusion, it must be recognized that many times a G1's best efforts will be thwarted by decisions of high command. However, it remains his responsibility to strive constantly to put across to his commander valid suggestions and recommendations designed to improve all aspects of personnel management and activities.

Warfare is the final and the drastic means which a nation takes to impose its will upon its enemies. War is the last resort. It is to be avoided so long as it may be honorably avoided. When it comes it absorbs the lives, the property, and the energies of the whole people. Whatever the future may hold for our country, of this I am certain, we will not start another war.

Admiral William M. Fechteler

China's Political Officer System

Lieutenant Colonel Charles H. Barber, *General Staff*
Assistant Chief of Staff, G2, Military Assistance Advisory Group—Formosa

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

POLITICAL activity in the Nationalist armed forces, while not a new phenomenon, was brought into sharp focus for American eyes shortly after the establishment of the Military Assistance Advisory Group (MAAG) on Formosa in May 1951. This mission, under Major General William C. Chase, quickly arrived at the point of questioning the entire character of the operations of the General Political Department, a high-level staff unit of the Ministry of National Defense. MAAG—Formosa was confronted at every turn and at all levels with stories about and evidence of the activities of political officers. While condemning these activities in principle, MAAG nevertheless continued to give political work a long period of observation and study. Although political work in the armed forces is a concept wholly deprecated by Americans, the Chinese Nationalist political officer system has been found to be susceptible of reform.

At the outset, it should be said that the work of the General Political Department has been the subject of a great deal of superficial comment. Unfortunately, it has been dismissed too often as a "political commissar system" or *Gestapo* organization with all that those terms connote to the American or European mind. For another thing, the historical background of military political work in the National Government of the Republic of China is not fully appreciated, nor is the reason

for its current emphasis in the thinking of Chinese leaders. Moreover, the word "political" is a misnomer for the wide range of activities which are carried on by the General Political Department, as will be seen later in this discussion.

Misunderstanding and controversy regarding the General Political Department exists not only among foreigners, but is prevalent among the Chinese on Formosa and overseas. It is widely discussed and is the subject of many rumors. Some unfavorable comments appear to have been justified. At various periods, the General Political Department has assumed duties and exercised its power in such a way as to result in resentment or possible injustice to the individuals adversely affected. Another part of the General Political Department controversy centers around the personality of its Director, Lieutenant General Chiang Ching-kuo, elder son of President Chiang Kai-shek.

General Chiang Ching-kuo is currently directing the General Political Department strictly within the limits of orders of the Ministry of National Defense and fully in accord with the objectives of the Generalissimo. He is mild-mannered, well educated, patriotic, efficient, and uncompromising in the performance of duty. His organization is characteristic of the man himself—well equipped and efficient. In the opinion of the author, it is the most efficient organization he has seen in almost 10 years of experience with the Chinese armed forces. Whatever the General Political Department does is done efficiently, a fact which also adds to its importance.

The American public has had practi-

cally no information on the General Political Department. Only slightly more information has been circulated in American official circles, and much of this has been incomplete to the extent of giving a one-sided picture of the situation.

To get a true picture, however, it must first be recognized that the political work exists for historical and ideological reasons, so let us take a look at its history. Political work in the Chinese armed forces was originally introduced into the First and Second Cadet Regiments of the Revolutionary Army in 1924 by Dr. Sun Yat-sen. Political work was an essential and accepted force in the Northern Expedition of the Revolutionary Army which by 1927 had recovered all provinces south of the Yangtze River. Much of the success of this expedition was ascribed to political work, and it has, with the exception of the years 1946-50, been an integral part of the armed forces of the National Government of the Republic of China. It is interesting to note that the director of political education in the Whampoa Military Academy in the early period was Chou En-lai, now one of the top Communist leaders in Peking. Later, in September 1937, the Chinese Communist Party (CCP) joined the National Government of the Republic of China in the United Front against the Japanese.

Political activity was a major force in maintaining morale and mobilizing the people for resistance at this time. Once

munist hierarchy, who continued in office until the total abolition of the General Political Department at all levels in 1946. From May 1946 until April 1950, there was no General Political Department.

Although General Marshall had urged the abolition of the General Political Department in both Nationalist and Communist forces early in his negotiations; neither side acceded to his proposals. When the Nationalists eliminated their General Political Department, it was actually the result of a complete change-over from wartime military organization, and no place was provided for it in the successor organization.

Isolation, defeat, and despair combined to produce a critical situation on Formosa in April 1950. The present General Political Department was ordered and took shape in the desperate months of April, May, and June 1950. Even before the Korean conflict changed United States policy in the Far East, giving new hope to the Nationalist position, political work was fully re-established as a vital part of the armed forces.

The current mission of the General Political Department is twofold: first, to maintain organizational soundness, and, second, to create and maintain good morale. The Chinese express these objectives indirectly; they say that they operate to establish new hope and new strength, and to cultivate a new spirit of great achieve-

The missions of the General Political Department of the Nationalist Government are to maintain organizational soundness and to create and maintain good morale in order to establish hope, strength, and spirit

again we run across Chou En-lai, this time second to General Ch'en Cheng, then Chief Political Officer and presently Premier of the National Government of the Republic of China. After 1938, the Chief Political Officer was Chang Chih-chung, presently a member of the Chinese Com-

ment. Practically all present political indoctrination is based upon two ideas: first, counterattack on the mainland and, second, fight communism and resist Soviet aggression.

Since the founding of the Republic of China, President Chiang Kai-shek has rec-

ognized three phases of the life-and-death struggle for its existence. The first was that of consolidation, in which the war lords were eliminated or brought over to the Central Government. The second was the anti-Japanese phase, in which the nation was saved from Japanese conquest. The present "fight communism" and "resist Soviet aggression" phase is another period of the struggle through which the nation must pass in order to complete the revolution of 1911. This thinking, plus the fact that the Nationalists consider themselves to be putting down a Communist rebellion against the established order, explains much of the General Political Department's reason for existence.

It must be kept in mind that the victorious Chinese Revolutionary Army from 1924 through 1945 was well and constantly indoctrinated by the political officers who were active in all units. The present National Government of the Republic of China leadership makes much of this fact and of the long record of opposition to communism, both within and without the armed forces. At the same time, the fact that the defeated armies of the National Government of the Republic of China from 1946 to 1950 did not have a political officer system is not allowed to go unnoticed. The reasoning is simple—a political officer system is necessary to win victory. In this case, it is necessary eventually to win military victories over the Communists and restore the nation.

Lieutenant Colonel Charles H. Barber served with the 14th Air Force in China from 1943 to 1945. From 1945 to 1946, he served as an instructor at the Command and General Staff College. From 1946 to 1948, he served in Nanking, China, as Intelligence Adviser to the Chinese Air Force Staff College. He left the service in 1949 and returned to active duty in 1951 as Assistant Intelligence Officer, Headquarters, Fourth Army. He is presently serving as Assistant Chief of Staff, G2, Military Assistance Advisory Group, Formosa.

Organization

Having explained the reason for military political work, let us examine the organizational structure of the General Political Department. The following quotation is from the revised and currently effective regulations published as an annex to General Order No. 108, 3 November 1951, of the Ministry of National Defense:

a. A General Political Department is established in the Ministry of National Defense as a staff unit to be responsible for matters pertaining to political work in troops under the command of the Chief of the Supreme Staff.

b. A political department is established in every military organization, school, and unit above the level of division; a political section is established in every regiment (including special and independent regiments), independent battalion, and hospital. Political officers will be assigned to battalions, companies, and independent platoons. Political departments of all levels may set up various working teams or sections to handle matters pertaining to organization,* information and education, inspection, security and counterespionage, civil affairs, and military news agencies if the situation calls for it.

c. A political department is established in every Navy and Air Force area command and a political section is established for every fleet and group. As for the various ground units and shops of the Navy and of the Air Force, political units will be set up in accordance with the corresponding organizations of the political units of the Army and in accordance with the demands of the situation.

d. Political units of all levels are staff units and the chiefs of political units are political chiefs of staff to the commanding officers of the units among which they work. The chief political officers in units below the level of regiment are the assistant commanders of the respective units.

e. Political personnel are permanent or fixed personnel in the unit, and political units are listed in the T/O&E of the troop organization.

Figures 1 and 2 show the relationship of the General Political Department to the military establishment of the National Government of the Republic of China and the organizational structure of the General Political Department.

* Organization here means to form teams and groups to carry on various activities as part of the public examination of procedures pertaining to personnel, management, opinions, and reward and punishment.—The Editor.

At the top of Figure 1 is placed the Chief of the Supreme Staff. On the left, immediately under him, is the Director of the General Political Department. On the right, also immediately under the Chief of the Supreme Staff, are the Assistant Chiefs of Staff. These Assistant Chiefs of Staff are not General Staff officers as we think of them. To get the proper picture one has to think of the Chief of the Supreme Staff as the Commanding General. Then the Director of the General Political Department can be considered to be the Political Chief of Staff and the Assistant Chiefs of Staff as Military Chiefs of Staff who co-ordinate, in turn, the work of the General Staff. In lower echelons, this is also true; a director of the political department of the major forces bears the same relationship to the commanding general in each case as does the chief of staff. This is illustrated by dropping down to the Army, Navy, Air Force, and Combined Service Forces (CSF) levels.* To develop the Air Force as an example, the major commands such as the Air Force Training Command and the Air Technical Service Command have a chief political officer and a chief of staff as co-ordinate in their relationship to the commander. It is this system that has led General Chase to declare that there are in reality two chiefs of staff, one political and one military, in every higher headquarters.

Figure 2 shows the organization of the General Political Department under the Chief of the Supreme Staff of the Ministry of National Defense. Next comes the Director, Lieutenant General Chiang Ching-kuo, then the three Deputy Directors, each one a co-ordinator of one or more General Political Department activities.

The command line of the Ministry of National Defense then runs on the right to the Political Training School, which is under the supervision of a Deputy Director. The Director has an augmented 10-man Policy and Planning Committee of which he is chairman, and to which certain command functions are delegated.

The command line then runs to the Adjutant, the nine staff sections, and the six operating agencies shown on the lower part of Figure 2. Each of these sections functions as its name implies, except S1, the personnel section. This section has complete personnel records and control of General Political Department personnel, however, it does not issue a single order for assignment of personnel. All such orders for assigning political officers come from G1, Ministry of National Defense. However, it should be noted that no high-ranking political officers can get orders without the approval of the S1 of the General Political Department.

One other S1 function is the administration of the public examination of procedures which is given in more detail below. Military information, special services, and psychological warfare are the responsibility of S2.

The S3 section provides the inspection services, and would correspond to the Inspector General's Corps in the United States Army. It establishes inspection teams and actually makes inspections at the General Headquarters of the Army, Navy, Air Force, and Combined Service Forces.

The S4 is primarily a counterintelligence organization, but its surveillance functions are a far larger part of its work than is investigation. This security section has all normal G2 counterintelligence responsibilities, except for bivouac security and camouflage discipline.

The S5 is the civil affairs section, responsible for all civil-military relations including mobilization of civilian resources

* The armed forces of the National Government of the Republic of China consist of the Ministry of National Defense and certain directly commanded units, plus the Army, Navy, Air Force, and Combined Service Forces. The latter is an organization which is somewhat analogous to United States Army Service Forces in World War II.—The Editor.

for combat. It also handles work similar to our Red Cross and welfare activities which are described as "troop comforting activities." The Friends of the Armed Forces Association works with the S5 and enlists civilian co-operation with troops.

The S6 recently has been changed and now is responsible for military government and political training in guerrilla forces.

The S7 is one of the most important and active sections. Its information and education work covers political indoctrination, basic education, the overcoming-difficulty movement, and distribution of publications and propaganda.

The S8 section is charged with physical training except that it also includes athletic exhibitions and events such as are arranged by Special Services personnel in the United States Army.

A new section—S9—devoted to the reclamation of farm land for the settlement of retired military personnel has recently been established. This is a temporary section until other machinery for the administration of the entire armed forces retirement program comes into operation.

The S2 has supervision over the following operating agencies of the General Political Department: broadcasting stations, Publication Service, Military News Service, Army Motion Picture Studio, and Special Services. The Adjutant has recently added statistical control and the preparation of regulations to his general affairs duties. The Printing Shop is also under supervision of the Adjutant, however, it publishes all official printed matter of the Ministry of National Defense as well as the publications of the General Political Department.

Army Political Organization

At the Army level, there is a political department under a chief political officer, which has the following subsections: S1, Organization and Political Training; S2, Civil Affairs and Propaganda; S3, In-

spection; S4, Security; and an Information Section and a Political Working Team Section.

The same organization is duplicated at division level except that the Information Section is eliminated. Under the regimental political officer there is an inspector, an assistant for organization, an assistant for political training, an assistant for security, and an assistant for civil affairs. Battalion political officers are usually alone but they may have a secretary.

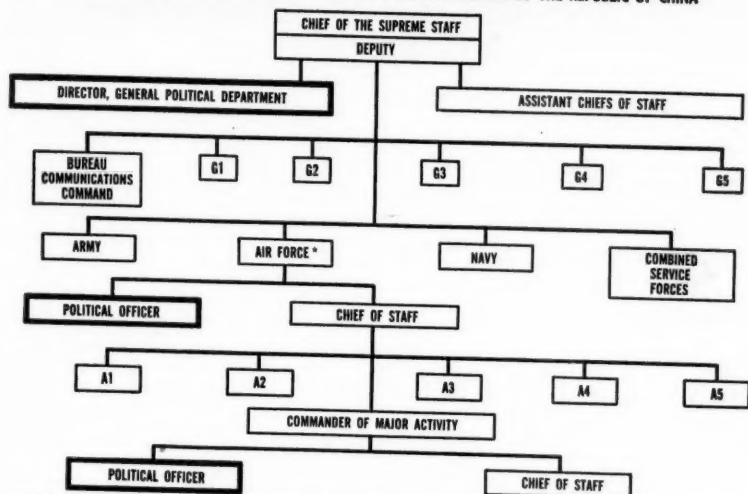
In the company there is usually a political officer and a secretary. At these levels, there will also be political working team members. At battalion and company level, these political officers may be assistant commanders as well as having their political status.

Activities Differ

The activities of the General Political Department are not the same in the case of each of the armed forces. There is a great difference between the activities which the General Political Department carries on in the Combined Service Forces and those in the Air Force and again in the Navy. In the case of the Navy, the assumed responsibilities of the General Political Department are broader in every respect than in connection with the other armed forces. It exercises greater powers of inspection. Hours of political indoctrination in the Navy are proportionately greater than in the other forces. The Army and the Combined Service Forces are under careful scrutiny through the inspection and security activities of the General Political Department, but not so much so as in the Navy.

The Air Force has a very limited amount of political inspection, in fact the S3 of the General Political Department up to late 1951 has inspected only the headquarters of the Air Force and has left all the rest of the inspection to Air Force agencies themselves. Moreover, in the Air Force,

ORGANIZATION CHART SHOWING THE RELATIONSHIP OF THE GENERAL POLITICAL DEPARTMENT OF THE MILITARY ESTABLISHMENT OF THE NATIONAL GOVERNMENT OF THE REPUBLIC OF CHINA



* THE GENERAL POLITICAL DEPARTMENT ORGANIZATION IN EACH OF THE MAJOR FORCES OF THE CHINESE MILITARY ESTABLISHMENT IS GENERALLY THE SAME AS THAT SHOWN ABOVE FOR THE AIR FORCE.

FIGURE 1.

ORGANIZATION CHART OF THE GENERAL POLITICAL DEPARTMENT

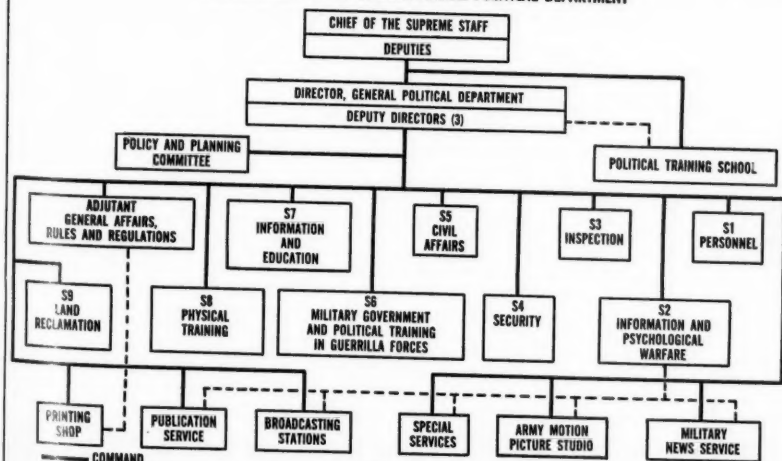


FIGURE 2.

it has been the author's experience that the political officers are more nearly proper staff officers than in any of the other services. However, generally speaking, a greater or lesser degree of the General Political Department's activity will depend upon the degree of loyalty and efficiency demonstrated by the personnel of the service or its subordinate units.

It is possible to prove that the functions of the General Political Department find almost exact parallels among the staff functions of the United States armed forces and related agencies. A detailed comparison follows below.

Staff Functions

Except for limitations of equipment, personnel, and money, the Special Services of the General Political Department correspond in almost every respect with those of the United States forces. For instance, there are motion picture teams, opera companies, and buffoonery teams which are regularly scheduled for troop entertainment. Some political officers, mostly women, give instruction in singing and dancing. In passing, it is interesting to note that more than 4,000 radios have been placed with troops. At present, almost every unit of company size has a radio. The work which is done in this field is excellent and it appears to be worthy of commendation and support.

Physical training is a part of the work of the General Political Department throughout all services. In addition, the General Political Department arranges sports events for both the military and civilian population. The Armed Forces Athletic Federation is sponsored by the General Political Department. It is possible, however, that the integrated portion of the physical training program was somewhat reduced along with other political activity when political training time was cut to 10 percent of the scheduled training hours.

Security

Counterintelligence, with the general exception of march and bivouac security in combat areas, is a political function. The emphasis here is placed on counter-espionage and detection, countersubversion, and personnel security. These are considered to be G2 or S2 functions with the United States Army, however, with the National Government of the Republic of China, it is perhaps the most important single General Political Department activity. Some Chinese intelligence people feel that they have been robbed of their proper responsibility for security and this has undoubtedly accounted for some of the internal resentment against the political officer system. However, security operations are well planned and effectively carried out in all echelons.

Inspection

The general subject of inspection has already been covered. Political officers do not attempt to conduct technical inspections without enlisting technicians and specialists as members of the inspection teams just as we do. In fact, United States Army regulations and special regulations have been adopted as a basis for all inspection procedure in the General Political Department.

Civil Affairs

Some of the civil affairs activities are very interesting. The promotion of civil-military relations and mutual respect are ideas new to Chinese thinking. However, there is presently a discernible feeling of pride in the armed forces on the part of civilians, and a reciprocal feeling of comradeship on the part of the soldiers. Under the name of "troop comforting activities," the General Political Department handles what corresponds to the operations of the Red Cross, Veterans' Administration, and much of the unit chaplain's work. The civil affairs section



The work of information and education is one of the prime functions of the General Political Department since this covers political indoctrination. Above, a group of information and education soldiers preparing bulletin board and poster materials. Below, Chinese soldiers studying information and education materials.—China Movie Studio photos.



sponsored the Armed Forces Disability and Retirement Program of the National Government of the Republic of China, which was put into partial operation in the spring of 1952.

Psychological Warfare

Psychological warfare and military information are grouped together in the General Political Department. Over-all direction is given to strategic and tactical psychological warfare as well as to propaganda prepared for home consumption. At the lower echelons, tactical psychological warfare training and operations are very effective within the limitations of equipment. Combat psychological warfare operations are particularly well adapted to Chinese psychology.

Information and Education

Next to security, the work of information and education is perhaps the most important function of the General Political Department since this covers political indoctrination. It is frequently stated that there is no political indoctrination in the United States armed forces, but this may be controverted by a reference to *Armed Forces Talk*, Number 389, published for the United States Army, Navy, Air Force, Marine Corps, and Coast Guard. The subject is "Communism; The What and How." Three radio transcripts and four films on Soviet life, the Communist threat to America, and the advantages of the American free enterprise system are listed as supporting elements for the discussion program. Attention should also be called to the American soldier voting program, the "Why We Fight" series, and the information and education programs as examples of a degree of political indoctrination within the United States armed forces. Surely somewhat analogous activity on the part of the Chinese Ministry of National Defense may be examined tolerantly.

Indoctrination

The General Political Department's approach to the problems of indoctrination is fundamentally sound; it is much the same approach embodied in statements by United States leaders to the effect that a well-educated and well-trained soldier who knows why he is fighting is the best type of fighting man. Therefore, the General Political Department started out to raise every member of the armed forces to a minimum standard of literacy.

The educational program in the armed forces is the direct result of a deliberate effort to increase the effectiveness of political indoctrination. The Chinese have realized that illiteracy not only prevents the use of the very economical printed word as an indoctrination measure, but that the illiterate individual is not receptive to, and appreciative of, such ideas as national pride, constitutional government, and the fundamental differences between communism and capitalism. Moreover, the literate soldier can be trained better and faster and he may be taught more complex skills.

Most significant are the figures relating to the elimination of absolute illiteracy. Whereas 21.8 percent of military personnel were unable to read or write in 1949, only 0.26 percent were absolutely illiterate at the end of 1951. A new standard of literacy has recently been adopted which is considerably higher than the one on which the foregoing percentages are based. The new standard will result in even greater improvement in the basic educational level of the soldier.

There has also been an interesting increase in the percentage of military personnel whose educational level is that of middle school through college. From 22.4 percent in 1949, the figure had risen to 30 percent at the end of 1951. Measured in other terms, 59 percent of the members of the armed forces were capable of reading and interpreting information in the

public press at the end of 1951, as against 43 percent at the end of 1949.

As a result of the recognition of the educational differences between military personnel, the information and education section has graded its instruction for each of the following five educational levels: illiterates, elementary and primary grades, junior middle school, senior middle school,

nomics, Soviet aggression, art, political doctrines of the National Government of the Republic of China, current events, and an endless variety of subjects pursued by voluntary study groups. Education and indoctrination is continuous, even the changing of the guard is sometimes accompanied by the exchange of a new word in Chinese or English which each sentinel



The Special Services of the General Political Department have regularly scheduled troop entertainment. Above, Chinese soldiers performing in an amateur night show.

and university. This has somewhat complicated the problem of publication of educational material, but it has also had the effect of limiting the amount of formal political training time among the common soldiers, sailors, and airmen in favor of increased basic education which should improve their over-all capabilities as members of the armed forces. Conversely, among senior officers, political indoctrination will constitute almost 100 percent of political training time.

Aside from classes in basic Chinese, there are classes in English, history, eco-

nomics, Soviet aggression, art, political doctrines of the National Government of the Republic of China, current events, and an endless variety of subjects pursued by voluntary study groups. Education and indoctrination is continuous, even the changing of the guard is sometimes accompanied by the exchange of a new word in Chinese or English which each sentinel

Public Discussion

Public discussions, the "Szu Ta Kung Kai" or public examination of procedures relating to opinion, management, personnel, and rewards and punishments, were

introduced in 1951. Enlisted men and officers alike take part in the discussions. Often a political officer acts as moderator;—in debates the judging panels are often chosen by the unit personnel. The unit commander may accept or reject the suggestions and recommendations which come out of the discussions. At any rate, the enlisted men of the armed forces of the National Government of the Republic of China have learned to speak up on subjects affecting their welfare—a system which compares favorably with the “complaint hour” offered by the American inspection procedure.

Publications

Reading material of all descriptions as well as indoctrination publications are disseminated as part of the information and education program. Many units have libraries in their day rooms and bulletin boards are usually prepared and set up by members of the units in co-operation with the political staff. These bulletin boards serve as a teaching medium, as a recreational device, and as a gauge of the level of political indoctrination of the unit.

During 1952, two new educational courses of great significance were added to the troop program. One is a course on military discipline, stressing obedience and proper military conduct. The other deals with integrity of command, and is designed to create an understanding of command responsibilities and a consequent respect for command authority.

Security, Morale, and Welfare

Actually, from the standpoint of its functioning, the General Political Department could more accurately be termed a “Security, Morale, and Welfare Department.” Its many responsibilities necessitate contact with the work of every other staff agency. It was evidence of a certain lack of co-ordination and, indeed, some conflict with proper staff operation that first

brought the General Political Department to the attention of MAAG—Formosa. It was felt that reform was necessary, and the record of MAAG recommendations for reform and the General Political Department reactions thereto is set forth below.

In some units, but not all by any means, political officers formerly exercised the power of countersigning the orders of the unit commander. This was one of the ways in which there appeared to be political interference with command. In addition, a so-called “technical channel” of communications existed between echelons of the General Political Department. This was similar to the channels used by the technical and administrative services of the United States Army. However, MAAG—Formosa felt that both the countersignature practice and the “technical channel” of communications had implications adversely affecting command which were undesirable and unnecessary.

Training Time

It was further noted that as much as 25 percent of training time was being used by the General Political Department, and MAAG felt that this was wrong. A protest was made against this high percentage of political training time, and, in October 1951, MAAG—Formosa recommended that it be reduced to not more than 10 percent of regularly scheduled training time. This recommendation was accepted and implemented by the Ministry of National Defense about 1 month later. Since more training and matériel for training was scheduled by MAAG—Formosa, it was felt that a maximum of time for training in the arms was essential.

Reform

General Order No. 108 of the Ministry of National Defense set forth the revised regulations for political work, but more

important, it abolished the practice of countersignatures of political officers on orders, and it established political officers as staff officers in higher echelons, and possibly as assistant commanders at lower levels.

On 25 February 1952, General Order No. 29 of the Ministry of National Defense was published with the effect of abolishing the "technical channel." At that time it was stated by the Chinese that the importance and value of political work was generally appreciated to the point that the use of normal command channels would be satisfactory and would not impair the efficiency of operations.

As far as MAAG—Formosa was concerned, these changes effected by the General Political Department represented a very great degree of co-operation. It was thereby demonstrated that the political officer system could be reformed. However, it is doubtful that its functioning can ever be brought into full conformity with the American staff system. Chinese leaders feel too strongly about the efficacy of political activity, and the exigency of the Nationalist situation seems to them to demand the doctrinaire approach.

As a practical matter, since its abolition is impossible, the political officer system has been accepted with reservations. The earlier reservations concerned political interference with command, the "technical channel" of political department communications, and the excessive

amount of political training time—all of which have been the subject of remedial action. The most recent reservation on the part of MAAG—Formosa concerns the duality of staffs, the political chief of staff and the military chief of staff, each with their respective personnel in practically every headquarters. General Chase considers this to be in conflict with the accepted staff doctrines and practices which are being taught in the senior service schools of the National Government of the Republic of China. MAAG—Formosa is pressing for a further change that will more nearly conform to the American staff system in regard to political officer functions.

Conclusion

From Korea have come many comments on the effectiveness of the Chinese Communist political officer system. Superficially, therefore, political work in the Nationalist forces would seem to represent a policy of fighting fire with fire. However, the present status of political work with the armed forces in Formosa does not represent an undesirable compromise with reality. What actually exists is a working relationship with a system from which the most objectionable features have been eliminated. If the remaining functions of the political departments at all levels of command could be brought into conformity with American staff practices, there would be little left to criticize adversely.

We know that the only realistic way to world peace, at this time, is by keeping this nation strong. Until real unity is brought to mankind, we must use all means at our disposal to establish a strong military posture.

Brigadier General Charles E. Loucks

The Tenth Principle of War

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

FOR more than half a century our military doctrine has been based on nine principles of war. Firm peacetime grounding in those principles plus their skillful wartime application carried our armies to battlefield victories in two world wars. Our nine principles accomplished the mission assigned them, but is it conceivable that, like Moses, we should have accepted—and practiced—*ten*. Have we overlooked the most important principle of all, the one which provides a basis for winning the peace?

A Lasting Peace

All Americans wanted not merely a quick victory, but a lasting peace, in 1918 and again in 1945. We granted an armistice to end World War I. Today, some 30 years after the Treaty of Versailles, there is no agreement as to the errors that lost the peace.

Eight years have elapsed since Germany surrendered "unconditionally," and Japan almost as abjectly, in the second global melee. We, or our 1945 allies, occupied every inch of our former foes' territory. Yet we have not even concluded a peace treaty with Germany while strife and threats of more wars engulf the world. What mistakes did we make in 1945?

Only one answer is clear. Our mistakes at the close of each war, whatever they may have been, were unimportant com-

pared with those we made during the course of both conflicts. We lacked a tenth principle of war to direct us toward lasting, not merely temporary, victory.

Why has that principle been overlooked? How long must it wait for acceptance by government, as well as military, authority? What name shall we give it? Obviously we must first establish its implications. Four of these are inescapable:

1. It cannot violate American ethics.
2. It must indicate its mission.
3. It must apply to past wars that have brought enduring peace (if there be such).
4. It must be practically attainable.

Can we first establish the fourth point without which the rest degenerate into mere theorizing? Most wars of the past two centuries ended with the pattern for their successor already in the making. Histories erroneously blame the resumption of combat upon mistakes at the peace table. We must realize that the tenth principle of war is based upon the knowledge that patterns for future conflict are formed between the moment victory first appears on the horizon and the acceptance of final terms by the defeated nations. During that interval, when it becomes apparent whose head will be on the block, the winning "allies" eye the prizes of victory. Some may decorously await the "peace" to present their claims. These nations apparently believe that only the enemy of the moment is "bad," that all allies are essentially "good," and that all "good" men are anxious to end wars by avoiding acts of aggression.

By waiting, these nations think to prove their trust. Psychologically, "If

you want trust you *must give trust*." This rule is beautiful—yet, it is not universally accepted at the international level, as the United States has discovered. Probably most peoples, particularly those recently exposed to warfare, would accept it, but governments sometimes prevent. Such governments prefer the rule about "A bird in the hand"—or the one attributing success to early morning insomnia.

If the time interval between wars could be stretched out to permit the slow process of education and exchange of good will to operate, a degree of mutual trust might be attained between nations. This was attempted in our lifetime, seeking to "buy off" aggressors, without achieving the exchange of good will. That attempt's failure we now call "appeasement." Until a better method is discovered, the adoption of a tenth principle seems mandatory.

Historical Examples

History proves that wars *have* ended without creating a pattern for future conflict. The Third Punic War between Rome and Carthage was one. Its solution was the depopulation of the defeated state, and the destruction of its cities. Rough—but it was the decisive answer the Romans wanted. Carthaginians have not threatened the peace since that time. The only lesson from that war is that *the peace can be won*.

Rome, according to the record, stands

Britain, Greece—many lands—accepted Roman rule, and prospered under it, for centuries. Later, in the dark years, Roman power collapsed from within. Her conquered territories did not revolt. In fact, they did much to postpone the debacle. It would seem, therefore, that the secret of the tenth principle, both its success and failure, might be solved by Roman history.

Compare Rome with more modern examples. A handful of British troops held India's millions for 200 years with only one serious uprising. In 1914 and 1940, France's African holdings were the loyal support of a shattered homeland. Both British India and French Africa were won by campaigns that brought peace, not new wars. Both yielded to the victors whose methods, unlike the annihilation of Carthage, were reminiscent of Roman pacifications in Gaul and Britain.

Marshal Bugeaud of France summarized their success as "not so much to defeat the enemy in the most decisive manner as to subordinate him at the lowest cost, both to him and to oneself, and in a way which guarantees permanent pacification."

Applied to American history such ideas could explain the permanent settlement effected by the Civil War. After the North forcibly prevented the South's secession, a policy of conciliation, despite minor deviations, proved to the Southern states

Winning the peace is a large-scale proposition—bigger than winning battles or campaigns. Thus far, we have lacked a tenth principle of war to guide or direct us toward a lasting, not merely temporary, victory

as the world's most successful practitioner of winning the peace. Yet even Rome was slow to apply the tenth principle successfully. It was her *third* war with Carthage that brought peace. Nor was the Roman policy in that conflict ever repeated on a major scale during *Pax Romana*. Gaul,

that they were better off in, rather than outside, the Union.

Also, the point concerning lowest cost to both sides finds support. The destructiveness of Sherman's march to the sea perpetuated Southern bitterness years longer than any other campaign of that war.

Von Clausewitz's Views

Not even Von Clausewitz, first prophet of total war, categorically insisted upon his frequently misquoted objective: "total destruction of the enemy." His actual phrase was "the enemy's *will to resist*." Throughout his eighth (and final) book he constantly stressed that war's objectives must be drawn to ensure permanent, not temporary, victory. In that he was the first eminent prophet of the tenth principle as well as of "total war" for which, unjustly, he is mainly revered, or reviled.

One cannot imagine Clausewitz approving "unconditional surrender" for an entire nation. Consider the effect upon a fugitive with a high price on his head, "dead or alive." Is he thereby more easily taken into custody? Apply that to warfare—like Bugeaud:

We should turn to destruction only as a last resort, as a preliminary to better construction. Once the submission of the inhabitants is received the first concern is rebuilding the village, creation of a market, establishment of a school. By combined use of politics and force, pacification will be achieved.

In brief, the wise victor builds up an empire by absorption of the vanquished—not by blind application of force unconcerned with postwar considerations of a practical, as well as ideological, nature.

Until this century's "progress," mankind's most destructive conflict—the Thirty Years War (1618-48)—held all records for mass destruction of life and

property. It was a war of religions (ideologies). Clausewitz, no less than Marshal Bugeaud, condemns its example.

The American Problem

Can it be that America, most idealistic of modern nations, has been making the same error? In both our great wars we painted our foes completely black, our allies 100 percent perfect. (At least we did so at home whatever may have been the reaction among the troops.) Yet the military victories we won in both wars found us at odds with our previous allies. After the foe had been destroyed so thoroughly, American taxes had to pay for his "rehabilitation."

As a nation we read Clausewitz too cursorily. We never heard of Bugeaud. We ignored Britain's Indian empire. We forget the lessons of our own Civil War. We act as though there were no tenth principle of war!

The justification for that principle is the necessity for plans and action to win the peace. Peace today, after World War II, is remote indeed. Until the world is happy, fed, and free, there can be no peace. Threat of war diverts social, political, and economic effort into wasteful armament—"guns not butter."

What conditions will permit America to enjoy peace? What might this country have accomplished as a result of World War II, which it did not achieve? Could we have avoided our problems in Berlin, and achieved friendly relations in the Balkans, stability in France, democracy in Germany, peace in Korea? Could solutions have been foreseen somewhere along the path to victory?

Under our democratic constitution, the State Department handles all international affairs short of war. After battle, the State Department is expected to return to the scene. That procedure has long dulled our military senses to the political implication of military actions. Our con-

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clusion has been that military duty started and ended with the gun.

Therefore, in World War II, our troops were not trained in the art of spreading the American idea of government. Our successful military leaders were vaguely assigned the additional task of making the gospel of freedom intelligible to conquered lands. They had only to win battles and then return home. Only in Japan did an experienced combat commander influence both State and Defense Department functions.

Occupation of Germany

The German occupation was a typical case. Our Army entered the heartland of Germany and the "war was over." It was time to kiss the girls in Times Square. Someone said "A second-rate—or third-rate—army can clean up." We realize, now, that was a mistake. Even so, it is doubtful whether anyone knows exactly what should have been done. Our armed forces were not prepared for any action other than fighting. Not one single rifleman was trained for the complex responsibilities of occupation duty as a result of a central program. Our hastily organized military government schools trained administrators, but time was too short to formulate a master policy to guide their administration. Division commanders and their staffs were, like their counterparts at corps and army, educated to fight and win battles. No one taught winning the peace to anybody. There was no clearly explained American "party line." There was insufficient co-ordination of national aims beyond the limits of the battlefield.

Co-ordination

There have been brief moments in our history when an individual in authority caught a flash of the possibilities of such co-ordination. Theodore Roosevelt mixed diplomacy and armed strength in exactly the right proportions to establish the American flag in the "canal zone" of

Panama, without bloodshed, either at the time or afterward. Yet American sentimentality (the "underdog complex") has criticized him harshly for his effective action, ignoring the chill fact that a Panama Canal in other than American hands might have lost the war for us in 1942.

When General Eisenhower staged his first invasion—North Africa—the State Department and the military did act in unison. The resulting pacification of, and alliance with, French Africa was less spectacular than blasting Oran and Algiers off the map but far more beneficial to our war effort. One shudders to think of the damage that could have resulted had "unconditional surrender" been applied against the Vichy forces that initially fought our landing.

Our political and military efforts must be co-ordinated. The inherent soundness of any plan for co-ordination is reflected in the clarity with which it describes American aims beyond the battlefield victory. In 1944, military considerations alone sent our armies into France and across the Rhine rather than up the Adriatic and through Austria.

Doctrine and Decision

People engaged in planning activities are disposed to look upon this thought of a master national plan as a farfetched impractical dream. "One must have doctrine, decisions, and approval before embarking on a planning mission." Admitted. However, such doctrine, decisions, and approval are contained in the bulwark of our freedom. Doctrine is the Constitution of the United States. Decisions are based upon that doctrine. Is it too much to ask that we plan with the same farsighted courage and honesty our forebears displayed in giving us our Constitution?

Winning the peace is a large-scale proposition, bigger than winning battles or even campaigns. The way in which those

campaigns are won will aid or hinder our larger purpose. A tenth principle of war must bear a name proportionally important. Is there a better word than Democracy? Its Greek origin: "the people" plus "to be strong and rule" meets our need precisely.

Lasting peace demands strength to rule, not arbitrarily or unjustly, but for the greater welfare of victor and vanquished alike. Force, applied according to all ten principles, to assure the victory without question; then wise conciliation "with firmness in the right as God gives us to see the right" after the manner of our nation's most permanent peace.

That definition of the tenth principle can be applied to Rome's lengthy success and subsequent failure. Democracy died first in the Eternal City, survived longest in remote territories. With its demise Roman conflicts degenerated into brawls for loot, not long-range programs for the greater good of the greatest number.

Unavoidable destruction must be limited

to its maximum effect on the battle, minimum effect on the peace. Every military man must be trained for his job of salesmanship as well as combat. Military operations must still be conducted with full recognition of the accepted nine principles of war, but all of them viewed in the light of the tenth principle. Conversely, new or altered operations may be dictated by the tenth principle, to be conducted in consonance with the other nine.

"Democracy," as our tenth principle, meets our four requirements. It has been proved to be practically attainable. It applies to all past wars that brought a lasting peace without annihilation of the defeated. Its title aptly outlines its mission—no democracy has yet been guilty of aggressive war. It is the very basis of American ethics.

No country on the globe is more suited to implement the tenth principle of war than the United States. We can put a world-wide meaning into the word *democracy* if we apply it as our tenth principle of war.

NEXT MONTH

The next issue of the *MILITARY REVIEW* will feature the article "Our Military Status in Japan," by Major Richard B. Kreutzer, an instructor at the Command and General Staff College. Major Kreutzer discusses the relationship between Japan and the United States—two former antagonists of World War II. He points out that through the Japanese-American security pact and because of the invasion of the Republic of Korea, the United States and Japan are bound together with the common purpose of maintaining peace in the Far East.

"The Japanese Navy in World War II," from *The Journal of the Royal United Service Institution* (Great Britain), will be included in the "Foreign Military Digests" section of the magazine. The article points out that the two tendencies of Japan's national character, inability to meet sudden emergencies and lack of steadfastness in pursuing a course of action, go far to explain mistakes made by the Japanese Navy.

Operations in Darkness and Fog

Guenter Blumentritt, General der Infanterie, *Former German Army*

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

HOW do military commanders and troops react to darkness and fog in warfare?

What were the *German* experiences under these conditions in World War II?

In the future, how will night and fog affect:

1. *Ground warfare?*
 2. *Air warfare?*
 3. The *tactics* of the ground forces, especially tanks and motorized troops?
- Naturally, I can give only my own personal experiences and views on the subject.

Generally speaking, it may be said that the night is no man's friend! On dark nights and in dense fog, visibility is poor or nonexistent. Night, therefore, affects the imagination as well as the nerves. The tendency is to imagine dangers which do not exist. All senses are strained to the utmost, and quite harmless objects, sounds, or movements seem sinister. If hunger, fatigue, and combat excitement are added, all of these influences are intensified and there is just a narrow gap separating the troops from panic and mass hysteria.

Even well-disciplined troops are not entirely free from the influences just described. Distances seem greater, all objects

appear larger, and calculations of mileages and time requirements are faulty, which explains why civilized man in particular dreads the night, for life in the cities has estranged him from nature. At the same time it explains why less-civilized people, who live close to nature, are not afraid of darkness. It further explains why, even in civilized nations, hunters, lumbermen, farmers, and others who spend long periods close to nature adjust themselves far more readily to night conditions than the towns folk, whose nights are spent with others under artificial light.

Often the dread of night results partly from a faulty education of children, who are told gruesome bedside stories. No wonder that they also retain an aversion to darkness in adulthood.

In actual fact, night has no terrors for men close to nature. On the contrary, the open sky is *beautiful* and calming to them. All that is necessary for the removal of an aversion to night is to train young people properly, to bring them out of the cities into the open country, where they may learn to appreciate nature at night. These facts are of extraordinary importance for the *soldier*, and for our *military* requirements!

It is no wonder that for a long time military leaders disliked the night and avoided exposing their troops to the influences of darkness. Unless it was impossible to do so, combat was usually called off at nightfall and not resumed until daybreak on the following morning.

In a future war, military commanders will be required to exploit the cover of darkness, fog, and smoke—both for movement and combat—if they are to achieve decisive results and defeat the enemy forces

It is interesting to note in the history of night battles that even well-disciplined, regular troops have been reluctant to expose themselves to the hazards of darkness, while less-civilized nations and those taking part in "illegal warfare" actually welcomed night as their ally.

Colonial, Indian, and similar wars prove this statement, and it is due to this fact that in these semi-civilized wars the well-organized, regular troops were often wiped out by the irregulars and the "close-to-nature" fighters.

A striking example of what is meant can be found in eighteenth-century history, when Indians serving under the French General Montcalm attacked and massacred British regular troops withdrawing from Fort William Henry.

Another of the hundreds of examples which could be cited is that of the three Italian brigades, under General Baratieri in 1896, which, while marching at night in Abyssinia, were attacked and scattered by the Abyssinians.

It is thus quite natural that colonial troops or white troops which had fought against colonial tribes were far superior in night fighting to the excellently organized but too highly civilized troops on European soil.

Until about 1900, the German military

leaders were against night combat and combat in large forests because of a reluctance to expose the strict discipline and the precise, rigid formations of their units to the uncertain and confusing influences of darkness.

What was feared above all, however, was disorderliness. That was why the old German Army was poorly trained for night action until about 1900.

Two events then brought a *volte-face*. These were the Boer War (1899-1902) and the Russo-Japanese War (1904-05). All German observers in these wars reported on the night battles they had witnessed. Our training manual of 1906 took due cognizance of this fact, and training in night combat became popular.

The superior night training of the British and Russian armies of that time forced Germany to improve training in night combat still further. The subject also was given more attention in military literature during the years preceding World War I. Thus, when I joined the Army, in the spring of 1911, it was already necessary to show by record that the 3 months of basic training had included 12 night exercises.

World War I proved the increasingly important role of night operations in modern warfare. It was the British and the French colonial troops who first taught us the necessity of night combat, but the Russian soldier was still the best to learn from in this field. The Russian troops had undergone long and excellent training for night combat, and they applied in practice what they had learned. They were the ones who taught us what real night combat meant!

After World War I, the *Reichswehr* energetically took up training in night fighting and in the exploitation of darkness. Maneuvers lasted all night and all training in night combat was systematized. This continued from 1933 until 1939, and much time was devoted to night training. Fi-

Guenther Blumentritt, a former lieutenant general (General der Infanterie) in the German Army, entered the service in 1911. During World War I, he served as a platoon, company, and battalion commander on the Western and Eastern fronts. In 1939, he served as Chief of Operations in Poland, and in 1940, as Chief of Operations in France. In 1941, he served as Chief of Staff to the Commander in Chief, German Army West. In 1944, he commanded the XII SS Corps. In 1945, he served as Commander in Chief, Twenty-fifth Army, Holland; the First Parachute Army; and the "Armee Blumentritt" in the defense of Bremen and Hamburg. After the war, he assisted the United States Historical Division in Germany.

nally, in World War II, night had become an ally, and was exploited to the utmost.

Once again it was the Soviets who remained our superiors in employing night as a weapon. An army order of the Soviet's Marshal Timoshenko was captured in 1941 in which he admonished his troops to make greater use of night operations, fighting in large forests, and close, man-to-man combat. He considered these three types of combat to be the strong points of the Soviets and the weak points of the Germans—who placed too much reliance on their technical armor. At night and in the forests, he continued, mechanical equipment loses some of its glamor, whereas hand-to-hand fighting remains an inherent strength of the Soviets.

Marshal Timoshenko's estimate of the Germans was quite correct. However, during the first battles with the Soviets in 1941, the German troops adapted themselves very quickly to night operations, fighting in forests, and man-to-man combat, and even surpassed the Soviets in these three types of combat after 1942.

What, then, are the conclusions that are to be drawn, what lessons can be learned for the future?

Operations at Night

Operations in the German sense of the word mean action or movement, for military purposes and intentions.* They may also aim at the initiation of tactical battles, and, likewise, at break-throughs, encirclements, outflankings, attacks, or retreats. To operate consequently means to

*The term "operations" has a more specific meaning in German military language than in English—covering the intermediate sphere between strategy and tactics, and being applied to generalship in the handling of forces in the field. The German sense is best expressed in the now little-used term "grand tactics." In the German Army, the distinctive sense given to "operations" and "operational" helped to develop the idea of maneuver in contrast to battering-ram tactics—to sheer massing of superior weight in men and weapons. But it tended to overshadow the importance of strategy, and the extent to which action in the field is subject to factors of a wider kind.—*The Rommel Papers*, edited by B. H. Liddell Hart.

move with a definite purpose. Nights, especially light nights, are ideal for daring operations! A modern, resourceful, and bold commander will happily exploit the dark of night, and will move purposefully with his troops under its cover in order to gain operational advantages over a night-shy enemy. The following are a few examples from my personal experience during World War II:

The Polish Campaign

In the Polish campaign of 1939, which was strictly mobile warfare, the commands of Army Group South and of the Eighth, Tenth, and Fourteenth Armies used the night in order to advance. Our strong tank and motorized units learned how to drive at night, instead of resting. Only in this way did we succeed in gaining an absolute operational advantage over an enemy, who, in true Eastern fashion, also moved confidently and purposefully at night. Had we rested during the nights, the movement-minded, night-experienced, and courageous enemy would have escaped easily.

The great flank movement of strong motorized forces on Warsaw was carried out at night, as was the advance of the Fourteenth Army into Galicia. There was no timid reconnoitering to the left or right. The Germans simply moved right through the gaps in the enemy lines during the night, and, consequently, on the next morning found themselves already far in the rear of the perplexed enemy, at a vital road junction, rail line, or river crossing.

Of course, there was no uninterrupted night-driving at 20 miles an hour. Things were not done in that way. The advance can take place at a maximum speed of about 6 miles an hour, and bit by bit, in "leaps" followed by halts which are sometimes of several hours duration. First, the armored reconnaissance has to be advanced, mine obstacles must be removed, and destroyed bridges repaired, before further movements are possible. Fre-

quently only the advance parties or strong reconnaissance detachments are on the move, while the bulk of the motorized division halts. It all depends on the situation, the energy of the commander, and on the fitness of the troops involved. The main point, however, is to *advance* or *move*, even if only slowly and with long pauses.

The Campaign in the West

Our campaign in the West in 1940 also owed its quick successes to night movements. Our tank and motorized divisions made good use of the night and were aided by the many excellent roads.

I shall mention only the 7th Panzer Division, then commanded by General Rommel. For propaganda purposes it was called the "Phantom Division." Rommel did not differentiate between day and night. Several times during this campaign he drove straight through the enemy forces with his entire panzer division without any regard for the enemy or adjacent German troops. Frequently at night this division was under fire from all sides. Rommel paid no attention! His demands on his subordinates were extreme, however, he usually was with the advance guard of one of his motorized columns, energetically moving ahead. In Africa, he repeated this performance, and also used the nights in the desert for ruthless advances into the enemy's rear. However, his tactics were not unique. Our other commanders in the armored forces acted much the same in 1940. During the second half of the campaign our tanks simply drove by night through the gradually disintegrating, gallant enemy. The tank divisions took no notice of any firing that might be going on on their right or left. By daybreak they were deep in the rear of the enemy, and, naturally, they continued their drive during the day. They were frequently 60 to 90 miles behind the enemy lines, and, therefore, had to rely completely on themselves for days at a time.

The Campaign in the East

In the East, in 1941-42, this principle was maintained, and the German panzer armies as much as possible used the nights to continue their advance. However, the advances were no longer as bold and did not penetrate as deeply as had been the case in 1939 and 1940. The restricting causes were:

1. There were few good roads in the Soviet theater of war. During rainy weather these roads became completely impassable within 2 hours. The tanks then bogged down in the thick mud, sinking down to the upper rim of their caterpillar tracks.

2. The huge, frequently almost primeval, forests and swamps offered the Soviets opportunities for mining and blocking the few roads that existed.

3. Vital supplies, such as fuel, could be moved forward only with extreme difficulty.

4. The Soviets knew their country very well and the resistance they offered was entirely different from that offered by the Poles or the French. Tough and unperturbed, they remained in their forests and swamps for weeks, even long after the armored divisions had passed through. This proved a serious difficulty and endangered the movement of supplies to an ever growing extent.

These peculiarities of the Soviet theater of war, the extreme indifference of the Soviets to threats from the flanks and the rear, as well as the considerable night experience of this tough and not easily perturbed enemy, hampered the nocturnal movements of our forces. Nevertheless, we attempted to advance by night, just as ruthlessly as we had done, under more favorable conditions, in 1939 and 1940.

The Winter Offensive

The Soviets, on the other hand, during their great winter offensive of 1941-42, started from the Moscow area and moved like a pack of wolves under cover of night

and fog. During the bright moonlit nights of the East one could see the long, dark marching columns of Soviet infantry, cavalry, sled units, and motorized columns irresistibly advancing over the icy, snow-covered fields: all in constant motion, unperturbed by our far advanced fighting fronts. It was due to these night marches of the Soviets that, in the winter of 1941-42, strong Soviet cavalry forces were located in the large forests northwest of Roslawl, while the real fronts were still far away to the east on the Nara River.

The mistake of the Soviets was that *tactically* they never fully exploited these nocturnal operational movements in our deep rear!

Wane in Night Operations

For the reasons so frequently set forth, it was not possible for the German forces in 1944, after the invasion in the West, to take advantage of any opportunities for operational action that may have presented themselves. Nights were, therefore, no longer of any great importance to us for operational movements.

However, after the allies had crossed the Seine River at the end of August, we often wondered why their strong motorized forces never attempted to drive east and northwest during darkness just as our forces had done in the opposite directions in 1939 and 1940. In a few days their spearheads could have reached the undefended West Wall (the completely unmaned western frontier of Germany) at a time when the German front, shattered in many places, was still fighting far to the west.

It is difficult to recognize moments that are operationally advantageous. However, it has been proved that a modern high command must make ruthless use of the night for movement, if it wishes to achieve sweeping success and to crush the enemy quickly. In the final analysis, this is the purpose of any operation. Admittedly, this

requires a command that is willing to take risks, and that again is a matter of character and training.

I am quite aware that the problem is more involved than it sounds here and that it has nothing to do with courage in the normal meaning of that word. Acting along these lines is rather the final product of a certain school of thought, which needs a certain amount of time in order to become fully effective.

Night Break-Through

We come now to the question of when one should *cease* moving at night as though the enemy did not exist.

The definite point for a halt is, of course, before reaching unshaken, continuous enemy front line, or before a fortified position. Here, the mobile operation will be interrupted temporarily by the tactical necessity of achieving a break-through. To drive through such an enemy front at night is just as impossible, if not more so, than during the daytime. The necessary conditions must first be created by tactical action.

Timing

It is generally known that the right time to change from tactical battle to operational movement is a difficult choice. In practice, it will always take a few days for the higher level command to recognize that the time has come for resuming night operations. Very often it will be the daring commander of an armored division or corps who grasps the situation and acts accordingly, carrying along the higher command by his action. This again is a matter of training. Such action is impossible without accepting some measure of risk and it reflects the advantage of not exercising too rigid a command control.

To keep the troops moving forward at night also calls for toughness and temperament. It is only natural that the

troops tend to be cautious, and this must not be held against them. Napoleon showed what can be demanded in this respect.

The higher commander's place will then, temporarily, be close behind the body of troops that is to advance during the night. No results can be expected from encouraging written orders.

Night Armored-Airborne Action

In my opinion, the future belongs to nighttime action of combined armored-airborne forces, to be undertaken when an operation is well underway. It is up to modern-minded general staffs to calculate such combinations and to lay their plans accordingly. That fairly large-size night landings by airborne are possible was proved in the West as early as 1944. These landings, however, served tactical combinations in the rear of an enemy. In the future, it should be possible to support night moves of armored forces on an operational scale by co-ordinated landings of parachute and glider troops, also on an operational scale, during the night. In this respect, future possibilities can be considered unlimited in view of the fact that modern aircraft can transport even tanks. Furthermore, it should be possible to co-ordinate the action of armored forces and night bombing planes. Modern leadership must revolutionize its thinking, must exploit the technical possibilities, and not remain bogged down in the old ways of thought.

As early as 1944 the Germans were considering in advance, or rather were anticipating with fear, that allied armored forces, operating far behind their lines, would appear at the West Wall or on the Rhine in combination with strong airborne forces. However, 1944 proved too early for that, but there seems no reason why such a combination should not take place in the future. Technically, it is possible if operations and tactics keep pace.

In view of the immense technological and material potentialities available to the United States armed forces, and in view of the enterprise of American military leadership, I can very well conceive that such possibilities of the future definitely do exist and that, operationally speaking, the night could be turned into day.

That the night can be illuminated at will was proved during the past war, when the rays of searchlights reflected from the sky and bright and long-burning flares were used to light up entire areas.

In any case, the exploitation of the night for operational movements is a modern necessity. Exercises and combined maneuvers should be good training.

Movement Behind a Friendly Front

Operational movements at night behind a friendly front are such a matter of course and so well known that there seems no necessity to make special reference to them in this article. Such movements include, among others, nocturnal changes of position, regroupments, and false marches for operational purposes. All of these have been undertaken by audacious commanders.

Fog.—Natural fog and smoke screening are considerably less favorable for operations than darkness.

A moonless night is much better than a dense fog. Science and technology admittedly can provide possibilities of seeing at least something in fog, but on the whole, according to my personal experience, a really thick fog is bound to bring movement to an enforced halt. Fog also rules out, for the present, combined armored and airborne operations.

Moonlit nights.—There are almost no difficulties encountered in operations on moonlit nights. An experienced motorized unit can drive on roads during the night almost as well as during the daytime, only with considerably less speed and with several stopovers. Airborne troops, es-

pecially parachute units, can land almost as safely on a moonlit night as they can by day.

Dark nights.—Movement is hampered on dark nights, but it is not impossible. Many halts and very slow driving are necessary. However, even under these circumstances, it proved possible in the East during 1941-45 to advance about 12 miles on an average night along roads, which is better than not moving at all. However, the marching technique, reconnaissance, and tactics of such nocturnal operational moves are considered to be outside the scope of this article.

Strategic Air Force Operations

Since the air force is the service which will decide the outcome of future wars, it also must consider the night as being of particular importance. World War II proved that large-scale air raids during the night and even during fog are both possible and effective. In fact, the dark of night even increases their effect—especially as regards morale. The future will witness still further improvements in night air raids.

During the last year of the war the difficulties of flying in winter, particularly on cold nights, gradually decreased. Meanwhile, the terrible danger of icing has been greatly diminished and nowadays it is even possible to fly in the vicinity of the North Pole.

The difficulties of co-ordinating air action at night with the movements of motorized troops on the ground are no longer insurmountable. The best thing to do is to develop special night air forces, which are specifically trained for co-operation with ground troops.

During the severe winter of 1941-42 on the Moscow front, our dive bombers flew in the worst of weather and at temperatures ranging around 20 to 30 degrees below zero Fahrenheit. Airfields were in poor condition and icy, and only inadequate

equipment was available to prevent the freezing of fuel and the failure of the steering mechanism. Today, all these shortcomings are things of the past, particularly for the progressive-minded great powers. Even highly specialized types of aircraft, carrying the most up-to-date weapons, can fly at night, even in winter, without difficulty.

Since winter warfare has become so increasingly important, special attention should be paid to training in combined air-ground maneuvers during cold winter nights. Communication between air forces and motorized ground forces today presents no difficulties and the equipment of airfields for night flying has long ceased to be a problem. The situation can be further improved by the organization of special night detachments for the meteorological service.

I can, therefore, well imagine that combined air force-ground force maneuvers at night nowadays would be a particularly up-to-date feature, and their value would be greatly increased if they were extended to last several nights in succession.

Night Ground Force Tactics

At the tactical level, the night has long been an extremely important factor. Tactical regroupings, unit transfers, and the forward movement of replacements and supplies during the dark of night are common practice, as are nighttime tactical moves in preparation for an attack, movement into defense positions reconnoitered during the day, disengagement, and retreat. All of these uses of the night are well known.

The only question that remains open is that of the possibility of conducting major, decisive battles at night. There can be no doubt that situations do arise in which a decisive major battle can be risked at night after thorough preparation. A few such cases can be found in past history.

The German Offensive of 1918

It is true that the German offensive of March 1918, which was intended to decide World War I, only started at dawn on both sides of St. Quentin. We laid down an artificial smoke screen and nature, by coincidence, assisted with a dense natural fog beginning at 0500 and lasting until about 1100. Nevertheless, the German Eighteenth Army succeeded in its attack within a few hours under these unusual conditions and overran the British positions, which were organized in great depth. Fog, it must be remembered, is an even greater handicap than the darkness of night.

We see, therefore, that in the future the night also will be exploited tactically for major attacks, but only after the employment of air forces, armored forces, and massed artillery has been carefully and minutely planned and calculated in advance.

Present-day commanders and general staff officers must be able to handle these problems and handle them with thorough efficiency since in a night attack the attacking waves and the forward movement must be timed to the minute in order to integrate, hour by hour, the action of the many types of weapons.

If badly planned, a major night attack, which is aimed at distant objectives, is bound to fail and may lead to panic and catastrophe.

As early as in World War I, the Russians favored the night for their frequently large-scale attacks in which infantry forces were employed in as many as 15 to 18 attack waves. In 1914 and 1915, this was especially the case. However, because they were poorly executed, many of these nocturnal mass attacks broke down, with heavy losses for the Russians.

By World War II, however, the Soviet Army had learned its lesson. Its night attacks were better prepared, and, as previously mentioned, in the icy winter of

1941-42 before Moscow, they attacked our Fourth Army almost always at night, and succeeded in gaining ground.

That the night is a good time for reconnaissance and that well-prepared night attacks with limited objectives can succeed in capturing specific positions and specific areas is no longer new.

New, however, is the fact that the night can also be exploited in the future for large, decisive tactical attacks. I can well imagine that an enemy who is aware of his inferiority in the air will tend strongly toward exploiting the night, especially the long winter nights, in order to make up for the superiority of his adversary in the air.

During the invasion of 1944 we did not experience night attacks in the full sense of the word. There was usually a lull in the fighting during the nights, which in June were short. However, even during the autumn of 1944, at the German frontier, real large-scale night attacks were not nearly as effective as in the East. This was probably because of a reluctance to accept the hazards inherent in every night battle, and there was also no necessity for the allied command to incur these hazards, because the air force was far more effective during daylight and the tanks could drive with more security then.

In the future, however, I believe large-scale night combat will play an important role in warfare.

Future Requirements

An entire book could be written on the training and other requirements for night action, but that would be beyond the scope of this article.

However, on the basis of my personal experience, I should like to mention briefly these few facts:

1. Only well-disciplined and well-integrated units are suitable for the conduct of daring and far-reaching night operations, of the type described, with any

hope of success. No success can be expected with troops of militia character, who have been trained only briefly, since night undermines the solidarity of a poor military unit to an alarming degree.

2. Leadership from the commander down to the noncommissioned officers must be firm and sure.

3. A good army, which has had continuous successes, will be tremendously bolstered by daring night operations, and its performances will surpass expectations. On the other hand, a force which has been through unsuccessful operations is unfit for large-scale night action—it will not respond. Army units which have experienced several defeats in night action remain shy of the night for a long time. For instance, we had in the Fourth Army an excellent infantry division which had been attacked at night by the Soviets at Smolensk and on the Desna River, suffering heavy losses in both attacks. As a result, this division remained unreliable in night combat for a long time.

4. Small, well-composed combat parties are frequently more successful in daring night operations than large formations. The effectiveness of such combat groups, far in the rear of the surprised enemy, is usually far more than their actual striking power.

5. Motorized troops have a great advantage over the old-fashioned infantry divisions in that they are able to drive, and, therefore, are less exposed to fatigue. The drivers can be changed two or three times during the night. Formerly, night operational missions frequently failed because the infantry and cavalry divisions were already overfatigued by combat and march movements during the day, and were simply not able to continue in action at night. No matter how hard an ambitious and active commander would prod, admonish, or command, the exhausted soldiers simply remained sleeping

by the roadsides. Motorized troops, however, are much better equipped for this sort of thing. The life of a well-conditioned motorized unit on the march is very different from the unenviable lot of an infantry division on foot. The personnel of a motorized unit quickly learn to sleep in their vehicles! On prolonged stops they sleep even more than while driving!

6. For an advance into the rear of the enemy by operational night marches, the advancing force must be split up into several marching groups. It would be ridiculous, for example, to start an armored division on a night march on one or two parallel roads. Movement is slow, and the columns are often 60 miles in length. The bulk of the division hardly gets a chance to drive and the result is only senseless fatigue. Consequently, the advance must take place in three or four columns. Where the road network makes this impossible, it is much better not to drive with the entire division on one or two roads, but to push forward advance detachments. The division itself can start smooth driving at dawn.

7. Night marches naturally frequently encounter road mines, demolished bridges, road blocks, or enemy antitank fire. Since at night motorized troops are able to move only little by little, slowly, and interrupted by stops, bicyclists are very useful for reconnaissance work because bicycle reconnaissance is almost noiseless. Under enemy fire the bicyclists immediately dismount. They drive without noise, and they see and hear better than personnel in reconnaissance tanks, or on motorcycles. When close to the enemy, tanks at night do not drive any faster than bicyclists. Strange as it may seem, our experience with reconnaissance bicyclists ahead of motorized units was good. A party of 10 or 12 men, including some special engineers, is sufficiently strong for these purposes. They are not supposed to fight, but to reconnoiter and investigate

the road. They are usually given a 30-minute start ahead of the marching column. Next follows a group of engineers, infantry with heavy weapons, antitank guns, and a few reconnaissance tanks, all on light cross-country vehicles. Behind this light detachment follows the armored spearhead of the marching column.

In winter, the Soviets also sent cavalry detachments, sometimes accompanied by infantry on sleds, ahead of their motorized columns advancing along the snow-covered and frozen "roads," in order to provide reconnaissance and security. These Soviet columns frequently covered astounding distances over the endless snow-covered plains, particularly at the deep open flank of my Fourth Army on the Oka River during the December nights of 1941. Captured Soviet motor vehicles showed us how vehicles should be built to be able to drive in columns over completely frozen snow fields. German vehicles were less suitable for this purpose.

Much of the success of the Soviets was due to the ruthless Eastern fashion in which their troops were pushed forward. Thus, it was during one of these nights that we intercepted a radio message which read, in substance, as follows:

"My troops are on the march for the third night in succession, and they will not be able to reach Kaluga tomorrow morning, as ordered."

The intercepted reply stated, "You will act as ordered. Otherwise I fear for your health."

That is Soviet leadership. However, they did not reach Kaluga in spite of all, since 60 tanks from our 19th Panzer Division launched an attack from Malojarslawetz across the snowy plains on the moonlit night and drove them back to the frozen Oka River at Aleksin. Nevertheless, during the winter before Moscow, countless nocturnal episodes of this type gave evidence of the super-human efforts expended at night on both sides.

Conclusion

In World Wars I and II, contrary to expectations, armies frequently turned the night into day. An enemy traditionally as well trained in night combat and in night movements as the Soviets could be met only in the same fashion. We soon, and with full success, measured up to such standards of night warfare in both wars.

A war of the future should, in my opinion, exploit the night tactically and operationally to a still greater degree. This will be facilitated by up-to-date technical equipment.

A dauntless leader, commanding troops who have been trained for night fighting, is likely to achieve great, and even decisive, successes by fully exploiting the night.

With the ever changing requirements of the battlefield and the methods of waging war, influenced as they are by the rapid and revolutionary advances in science and modern technology, we cannot accurately predict what the future may hold.

Major General Elbert L. Ford

BRIDGE DEMOLITIONS

IN THE FACE OF THE ENEMY

Major Allan E. Younger, *Royal Engineers, British Army*

The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

THIS article was prompted by an earlier one entitled "Who Dictates Destruction?" by Lieutenant Colonel Harold J. St. Clair, which appeared in the October 1952 issue of the *MILITARY REVIEW*.

There is one aspect of the German failure at Remagen, however, which Colonel St. Clair did not emphasize. He stated that there had been no prepared demolition plan at the bridge and this surely was the key to failure. It is not with the desire to criticize his article that this has been written but rather to investigate the type of orders that, if given to the Remagen bridge demolition commander, would have ensured destruction of the bridge or at least saved him from execution later!

As Colonel St. Clair correctly stated, we are likely to have to fight a retrograde action in the initial stages of a future war. Men's lives will depend on the thoroughness of their training and the exactitude of their thought before this test comes. Therefore, we must ensure that the complexities and uncertainties of this type of warfare do not result

in a "Remagen," by careful and detailed planning and thorough execution of all operations during a retrograde movement.

From a purely engineer viewpoint, the main problem in demolition remains as it always has been, "What shall I do if the enemy arrives on my bridge and I cannot get in touch with the superior officer who is authorized to order me to fire?"

The reason that this question is so difficult to answer is that there are so many variables involved. These are:

1. The circumstances of the appearance of the enemy at the bridge and of their strength.
2. The strength of our own troops cut off on the far bank.
3. The strength of our own troops in close proximity to the bridge.
4. The relative air situation.
5. The time factor, including the efficiency of communications.
6. The importance of the bridge.

To illustrate these, let the reader decide whether he would order the demolition if he were a sergeant faced with this situation and able to blow a bridge but lacking any superior orders.

You are a German sergeant at the Remagen bridge. You have been told that at least three divisions of German troops are on the far bank. Suddenly a group of the enemy, you estimate a platoon,

There are numerous instances of demolition failures in battle because of a lack of precise orders. Frequently the trouble has arisen because of confusion concerning which officer was empowered to give the order

which is about the same strength which is available to you, appears at the bridge. Will you fire the demolition? Obviously, the answer is no. Alter this situation to an enemy armored division arriving at a less important bridge, with one battalion of your own on the far bank. Will you fire this time? Obviously, yes.

However, there are many situations between these two extremes where the answer is not so simple and in these instances remember that all the variables have not been included. The problem, therefore, is how to obtain the maximum chance of ensuring success when faced with so many variables and above all with the uncertainties of battle, particularly the lack of information so aptly called "the fog of war."

The Human Element

Another factor in bridge demolition is often forgotten by staff officers, namely, that of the strain on the engineer responsible for the demolition. It is doubtful whether any other single situation in war imposes such a strain on a junior officer or noncommissioned officer as the demolition of a bridge in the face of the enemy. The reason for this is that no man

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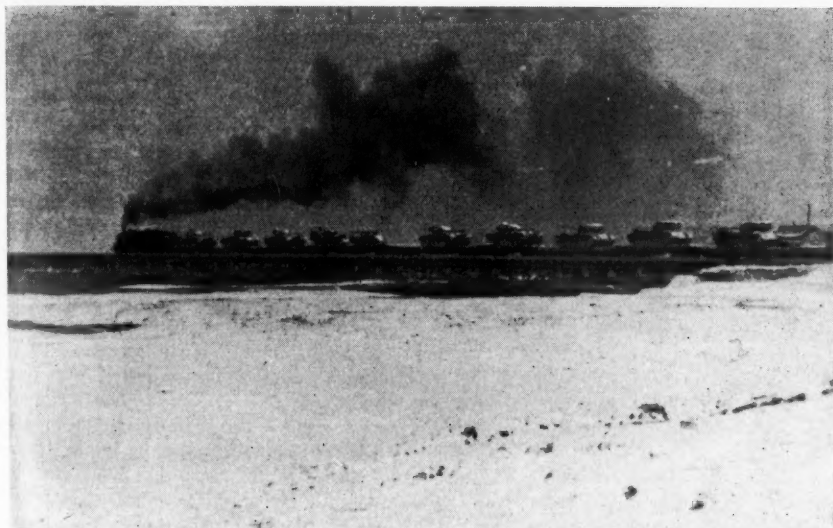
can ever be completely certain that a large and complicated demolition will be successful. A chance bullet or mortar shell may cut his leads, a well directed bomb is almost certain to. There is always a danger of premature demolition from similar causes, particularly when blasting caps have been inserted. Above all, no one on earth can give him an exact time for blowing, so he must be on the alert continuously. At the back of his mind may loom the potential penalties for failure. The physical relief that he feels if the demolition eventually succeeds is comparable with that felt by the airborne soldier when his parachute opens. Also it must be borne in mind that no country, however rich, is likely to be able to provide bridges for practice demolitions by newly commissioned officers or by noncommissioned officers.

This all points to the importance of the orders to the engineer firing party being really accurate, comprehensive, and realistic. A junior officer bearing such technical responsibility and subjected to such mental strain must be protected as far as possible from the chance of having to make decisions of great consequence.

Importance of Communications

If communications are adequate, there is little problem. A liaison officer in good contact with his headquarters can obtain a ruling on any eventuality; however, dare one rely on radio in these circumstances? During the Rhine crossing, the leading wave of LVTs on one sector was about to enter the water when an officer ran up to the commander of the wave: "There has been a slight change of plan," he said, "The artillery will not lift on a time basis, but when you give the code word 'Splash' over the radio."

Seconds later, the wave set off. As it did so, someone chose to send out a signal, successfully jamming the radio net. Helplessly the commander yelled "Splash,



A commander wishing to convert a river into a complete obstacle will order his engineers to prepare the bridges crossing the river for demolition in advance. Above, a trainload of American tanks crossing over the frozen Han River on the "Shoofly" bridge near Seoul, Korea, before its demolition. Below, the same "Shoofly" bridge after its demolition.



I say again, Splash" into his microphone, receiving no reply. Inevitably, the first wave drove into our own barrage.

This example is only introduced as being typical of circumstances all users of radio have experienced. It is suggested that to rely on radio as being the answer is courting failure by not eliminating one of the variables of the problem. Everything possible must be done so that the commander at the bridge site has no need to fall back on outside advice unless totally unforeseen circumstances arise. This indicates a need for written orders at the bridge.

Sequence of Events

Disregarding any type of demolition not being fired or likely to be fired in the face of the enemy, let us run through a typical set of circumstances to clear the problem in our minds.

A division commander wishes to convert a river into a complete obstacle and withdraw behind it. He, therefore, orders his engineer to prepare the bridges for demolition in advance. The front line may be 10 miles beyond the river and the loss of the bridges at this stage is unlikely. If they are lost, say to an unexpected airborne attack, the commander will fight to regain them. At this stage, the sensitive blasting caps should not be inserted into the demolition circuits on the bridge for there is little question of destruction. To avoid the chance for error, the engineer at the site should be given written orders not to fire. This will not prevent an officer senior to him from giving him contrary orders, but it does protect him if he insists on a written authority from this senior officer and he will obviously attempt to check with his divisional headquarters first, if it is possible.

If the bridge is important, the division commander normally will send a unit to protect it. The demolition team should be integrated into this unit so that

the whole becomes the bridge garrison. The bridge garrison commander, probably an infantry officer, is now the final link between the division commander and the demolition team leader on the site.

What the engineer at the site now requires is a checklist to tell his new commander the technicalities, such as the time required for inserting blasting caps, and to remind him of the extra danger of premature explosion when such caps have been inserted.

At this stage, the engineer also must be quite sure that all his men know how to fire the demolition in an emergency, and also that a seniority roll is prepared so that there will be no confusion if there are casualties. Similarly, the bridge garrison commander must be in close contact with the engineer and must plan to avoid confusion if he becomes a casualty.

Normally, communications can be assumed to operate, and the division commander can always order the destruction of the bridge. Obviously, he needs to appreciate two situations to give this order, namely the situation at the bridge and the wider situation over the entire front. To keep him in touch with events at the bridge site, and to provide him with a quick alternative means of passing the orders to fire, the division commander may station a liaison officer there, in radio contact with him at his command post.

Delegation of Authority

As the bulk of the covering troops withdraw over the bridge, or as the local tactical situation changes, the firing of the demolition may cease to be a vital divisional problem. At this stage the division commander will frequently delegate authority to blow the bridge to a regimental commander, who may in turn delegate it lower. This raises no problem except that there must be no doubt in the mind of the commander concerned that he is responsible for the giving of the order.

Moreover, the bridge garrison commander must be in no doubt about from whom he will receive his orders. This may be elementary, but it is the very delegation of authority too early or too late that causes failure.

Unforeseen Enemy Action

The whole difficulty of demolition orders can be summed up in the need for the junior regimental officer to know accurately the "big picture." This is an oversimplification, but it can be seen that if the division commander set up his command post at the bridge site with all the communications at his command, and kept it there until the demolition was complete, there would be little difficulty. There would, however, be a great waste of the division staff in the process.

Therefore, the man at the site must be kept in the picture, in the same way that he is responsible for keeping his superior informed of events occurring near him. If this has been conscientiously done there should be little danger of the wrong decision being taken in an emergency. If the enemy arrives unexpectedly and cuts off the garrison, the senior officer on the spot will take charge. If he knows the outside situation he should have little difficulty in meeting his responsibilities.

One human weakness must always be borne in mind. The jobs of both the bridge garrison commander and the engineer are complete when the bridge is demolished. Furthermore, the sooner it is demolished

the greater the chance of a technical success. Therefore, there is an understandable tendency on the part of both parties on the site to interpret events in such a way as to favor early demolition. Here, the presence of the division commander's liaison officer may help to keep events viewed in their right perspective.

Conclusion

The lesson of history is that where in battle there is uncertainty and a paramount need for determination and clear thinking, success depends, above all, on clear-cut command. There are many instances of demolition failures in battle because of a lack of precise orders.

Most often, in the past, the trouble has arisen through confusion as to the officer empowered to give the order. It is contended, therefore, that the chances of success depend primarily on absolute insistence on a recognized drill which must include:

1. Definite specification in writing by appointment and name of the officer authorized to order demolition.
2. Clear written instructions to the engineer officer or noncommissioned officer leading the demolition team regarding technical aspects of the demolition.
3. The possession by the demolition leader of a checklist to cover the engineer responsibility in various eventualities.

This precision is all the more necessary in modern war in the face of possibilities of attacks by air or armor.

We dare not forget that there is nothing man can invent with his science, nothing man can devise from his knowledge, nothing man can create by his genius that war, if it comes, cannot destroy.

General of the Army Omar N. Bradley

Military Geography of China

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The views expressed in this article are the author's and are not necessarily those of the Department of the Army or the Command and General Staff College.—The Editor.

FOR more than 100 years China has been an area of international friction, the principal cause of which has been the incapability of various Chinese governments to resist successfully foreign encroachments upon China's sovereignty. Since the latter part of the nineteenth century, despite the greater sensitivity of American interests to disturbances in Western Europe and the Western Hemisphere, the United States has regularly become involved in major diplomatic and military activities in the Far East.

Following World War II, China was rocked by a series of confusing political and military disturbances. The effects of these disturbances on United States interests in the Far East were not clear until a few years ago. However, the Korean incident has served to warn the forces of freedom that once again the vital interests of the United States, as well as the free world, are being jeopardized in this area.

Today, with Chinese Communists in control of China, the pattern of the Communist campaign for the domination of Asia is clearly discernible. With the launching of open and unprovoked aggression by the North Korean People's Army against the South Korean Republic, followed by the Chinese Communist intervention, the full impact of Soviet in-

tentions has been felt. Elsewhere in Asia, evidences of the Communist pattern are seen in the following:

1. Action by the Vietminh forces of Ho Chi Minh in Indochina.
2. The Communist threats to Hong Kong and to Macao.
3. The Chinese Communist drive to achieve sovereignty over Tibet.
4. Expansion of the area of operations of the Huks in the Philippines.
5. Continuation of the struggle in Malaya.
6. Indications of Communist plans for future revolutionary activities in Indonesia.

Thus, it can be seen that China is the hub from which, or around which, Communist influence is spreading.

For the purposes of this article, China includes Manchuria, Mongolia, Tibet, and Hainan Island. (See Figure 1.)

China occupies a strategic position in the Pacific area. She is nearly directly opposite the United States across the Pacific. The northern boundaries of Mongolia and Manchuria are approximately on the same parallel as the United States. The southern boundary of China lies approximately 7 degrees farther south than that of the United States. In latitudinal position, China is essentially a mid-latitude continental area.

In size, China is nearly as large as Europe not including European Russia, and is about one-fourth larger than the continental United States. (See Figure 2.)

The area is compact in shape and is surrounded on all sides, except the east and

southeast which are bounded by seas, by extensive rugged highlands, and by broad deserts. These geographic features ensure China of clearly defined natural boundaries.

Because of China's geographical position, large population, and great size, the periphery states in the Far East and Asia are generally apprehensive of any development which tends toward the realization of China's latent strength. In the struggle for men's minds, the balance of power between the Soviet world and the free world may lie in those periphery states, with their teeming millions, which are still on the fence in choosing their future political alignments. Some 700 million people in Korea, Japan, Formosa, the Philippines, Indonesia, Indochina, Thailand, Malaya, India, and Pakistan could tip the balance of power between the Soviet world and the free world. In determining which way they go, China will be a crucial area of influence.

Economic Value

Economically, China is an important factor in the life of its Japanese and Soviet neighbors. In Japanese eyes, China and its northeastern provinces have always had a twofold significance, both as a market and as a source of foodstuffs and industrial raw materials. For the Soviet Union, the most favorable communication routes from Siberia to the sea lie across

for the development of heavy industry. The Japanese did much toward building up the industries of this area by constructing an extensive railroad network there.

Historically, Manchuria has been the battleground of the Japan and Russia with the advantage shifting from one to the other. Both powers have come in conflict with China, but, because of the military weakness of the Chinese, the sovereign governments of China have been unable to play a decisive role in the past. More than 30 million Chinese constitute the overwhelming majority of Manchuria's population, and China has looked hopefully to this area as a base for industrial development.

Expansion Southward

Of secondary immediate strategic significance, but with important long-range implications within China itself, is the threatened expansion of Chinese communism southward. In this connection, Hainan Island, although its natural resources are largely undeveloped and it is not an important food source to the Communists, possesses excellent air, naval, and shipping facilities and is a potential submarine base. It is believed that the use of Hainan Island as a forwarding point for shipment of supplies and equipment which cannot be transported overland is contemplated by the Vietminh forces fighting in Indochina. While the Chinese Commu-

Because of her geographical position and large population and area, China could, by influencing the political alignments of her periphery states, tip the balance of world power between the East and the West

Manchuria, to the warm-water ports of Dairen and Port Arthur. The economy of China's northeastern provinces is complementary to that of the Soviet Far East. As long as the resources of North China are available to supplement those of Manchuria, the latter area is a favorable one

nists' push into Tibet may have for its purposes the reassertion of Chinese sovereignty over the area and, for psychological reasons, the control of Lhasa, the Buddhist Holy City, it appears more closely connected with the over-all drive of communism southward. Tibet lies astride the

ancient trade routes to India and affords access thereto through the passes in the mountains along the 2,000-mile border. Thus, the drive into Tibet is more significantly connected with the seizure of the area as a springboard for the infiltration and eventual subjection of India and Pakistan.

Terrain

China is a country of extremely diversified relief. The principal land forms consist of coastal plains and river valleys, numerous intermountain basins and inter-stream flats, considerable stretches of dissected plateaus and broad deserts, and extensive areas of rugged mountains and low hills. (See Figures 3 and 4.) Generally speaking, more than 70 percent of the country is hilly or mountainous. Less than one-third of the total land area of China is below 3,000 feet above sea level while one-fourth of her total land area consists of lofty, rugged mountains with elevations over 10,000 feet. The mean elevation of the country is about 1,500 feet above sea level. Except along the coastal plains of northern and central China and some broad river valleys in the interior (especially the Hsiang and the Kan corridors), movements by mechanized forces are difficult. Hilly lands and some mountainous country are extensively terraced for cultivation purposes. These terraces act as additional obstacles to movement of vehicular traffic.

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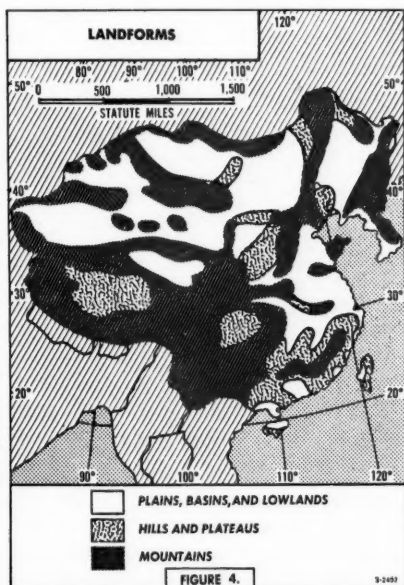
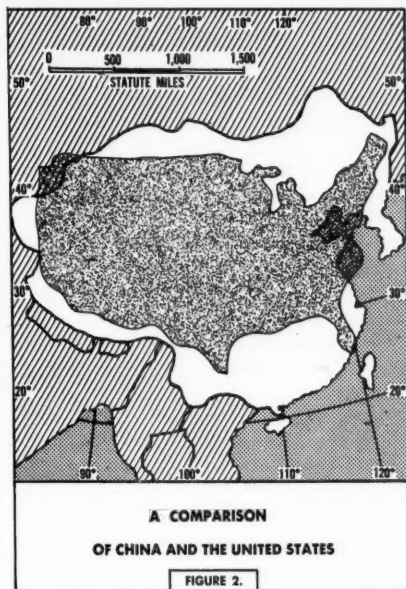
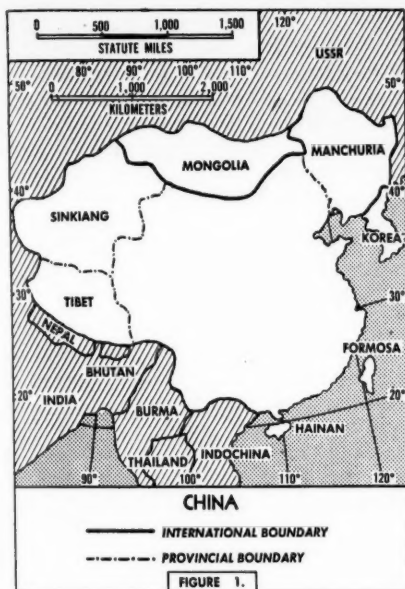
Mountains

Since more than 70 percent of China comprises hills and mountains, it would be well to consider first the main mountain ranges in the area. The most formidable of all are the Himalayas in southwestern China. This range, marking the boundary between China and India, is as close to being impassable as anything in nature. No army has ever negotiated it. The Himalayas are actually an extension of the Pamir Range just to the north. Although the latter is somewhat lower in altitude than the Himalayas, it too forms an effective barrier to movement.

The Tien Shan runs from northwest to southeast for a distance of 1,000 miles into China and includes some peaks which exceed 20,000 feet in elevation. It is crossed by one road, and that road is open for only a few months each year.

North of the Tien Shan is the Altai-Sayan Range, which includes the mountain complex along the border of Mongolia and the Union of Soviet Socialist Republics. While not as high as the mountains previously mentioned they serve as a barrier to any traffic.

Another extension from the Pamir Range is the Nan Shan. The western portion is high and there are no corridors across it. Where it turns north, however, it drops down considerably, until at the Great Bend of the Yellow River at approximately latitude 35° N and longitude 110° E it almost disappears. Related to this chain, the Yen Shan rises northwest of Peking. Extending farther north, this chain then becomes the Khingan Shan in Manchuria. Branches of the Khingan Shan encircle Manchuria. In the west it is high and steep, with few passes. The Lesser Khingan, across the north, is generally low and rolling as compared with the Greater Khingan. This range links the Greater Khingan in the west with the eastern highlands. These highlands cross international boundaries and connect



similar highlands in southeastern Siberia and Korea.

The next great spur from the Pamirs is the Kunlun. This, like the Nan Shan, is practically impassable in the west. From it develops the Tsin Ling, which from an elevation of 20,000 feet in the west extends eastward at an average height of about 9,000 feet deep into central China. This elevation decreases toward the east, gradually disappearing into the North China Plain. The Tsin Ling, coupled with lesser mountains, running east southeast, makes up the central mountain belt, as a barrier and a divide. The central mountain belt effectively separates the major regions of northern and central China, in all but the eastern third of the country.

The last Himalayan spur is the Nan Ling, which runs along the southeastern part of China, turns north along the east coast, and disappears just south of Shanghai.

Plateaus and Deserts

Tibet is a vast plateau with an approximate mean elevation of 10,000 feet. Separated on all sides from other parts of Eastern Asia and India by great mountains, it is the most extensive high-altitude area in the world. Much of the Tibetan Plateau is too desolate for human habitation.

The lofty wind-swept Yunnan Plateau, to the southeast, is a continuation of the Tibet Plateau. It is in the northwest portion of this area that three of the world's mightiest rivers—the Salween, Mekong, and Yangtze—race southward in broad parallel courses, at the most a few dozen miles apart. These deep river gorges appear to cut the terrain into north-south ranges and tend to obscure the true plateau character of the area. Farther south, the plateau lies at an average elevation of 6,000 to 7,000 feet. Numerous fertile, but disease-ridden, valleys interrupt the surface and render communications difficult.

Desert uplands cover almost half the area of China and are found generally in the north and west. They include the Gobi in Mongolia and the Tarim Basin (Takla Makan) in Sinkiang. Except on the extreme eastern edge and along the fringes of the mountains they are barren and windswept. Most of the top soil has been blown away and the surface is coarse gravel and bare rock. Apart from the harsh climate, these desert areas offer no barrier to movement.

Plains and Lowlands

The third of the land forms are the plains and lowlands. The low plains are found primarily in the middle and lower reaches of the two great valleys, the Yellow and the Yangtze. They are the most important agricultural and industrial areas of China.

The Yellow River plain is commonly referred to as the North China Plain. It is the larger of the two, covering an area of 125,000 square miles. The North China Plain is only about 500 feet above sea level, and is composed almost entirely of river silt. Floods are frequent and extensive. It is poorly drained, cut by many canals, and although trafficable in the dry season, it is almost impossible to negotiate in the summer rainy season.

The Yangtze Plain to the south is not as large as the North China Plain but it is higher, and in subject to floods only near the mouth of the Yangtze River. The soil is coarser than the North China Plain and trafficability is slightly better, although still poor in wet weather. It, too, is cut by many canals.

There are three principal intermediate plains areas, namely, the Szechwan Basin, the Loess Highlands of Shensi, and the Manchurian Plain.

The Szechwan Basin is in the upper-middle reaches of the Yangtze River which is surrounded by mountains. A principal entry is through the Yangtze Valley. The soil is red sand and clay, which is deeply

few. The great expanse of marshes and reeds, together with large tracts of salt pans, form additional difficulties for landing and military operations.

The South China coast is rocky and highly indented with many sheltered bays. There are numerous offshore islands of great strategic importance such as Hainan Island off the south coast. One good natural harbor is available at Hong Kong. Secondary ports are numerous, but almost all of those will not accommodate ocean-going vessels of substantial draft. Such vessels must anchor offshore, sometimes at a considerable distance, while freight is lightered ashore. The presence of narrow coastal plains and the numerous moderately developed harbors, such as those at Ningpo, Wenchow, Foochow, Amoy, Swatow, and Whampoa (port for Canton), aid landing operations there. Nevertheless, the rugged and forested mountainous terrain only a short distance inland from the coast, the lack of good roads for cross-country movement, and the prevalence of typhoons in the summer months mitigate somewhat the military usefulness of this stretch of coast.

Drainage

China is essentially a land of rivers. (See Figure 5.) Water transportation is most important to the whole Chinese transportation system. Therefore, the dense net of rivers, lakes, and canals, with their potential use as avenues of approach and as barriers, command special attention in planning military operations in the area.

China's rivers have controlled the economic life of the country to a unique extent. The drainage pattern is relatively simple. From the immense mountain background, the great rivers descend eastward to the Yellow, East China, and South China Seas. With widespread alluvium derived from the interior highlands, these rivers have created the basins and plains which support nine-tenths of the popula-

tion of the country. All but a small percentage of the entire drainage is gathered by three great arterial rivers which run a continuous course from the mountains to the sea. These are the Yellow, the Yangtze, and the Si Kiang.

The usefulness of the three rivers varies greatly. The Yangtze, together with its numerous tributaries, is by far the most important river system in all of China. It is not only navigable by various types of craft ranging from junks to ocean-going steamers for over 1,700 miles, but the valley itself furnishes a major east-west corridor of movement from the coast to the interior of China. The valleys of the Hsiang and the Kan, both tributaries of the Yangtze, offer the most vital corridors for north-south movement throughout all of China. The Si Kiang is navigable for considerable length whereas the Yellow River is almost useless for river traffic.

To the north, in Manchuria, the Liao and Sungari, with headwaters in the mountains and uplands, drain the plains and lowlands. In the southwest the Yunnan Plateau is drained by the Salween, Mekong, and Yangtze.

The rivers of China may be classified under three categories according to the areas where they are located, and each of these three groups has its own characteristics and special military implications. First, there are the rivers of the major plain areas, especially in eastern coastal China. Here the channels are generally wide, shallow, and shifting. There is a maze of dikes, canals and irrigation ditches, and numerous small lakes and marshes all of which constitute serious barriers for vehicular movement. Bottoms are generally of fine sand, silt, and mud.

Second, there are the rivers of the hilly areas in south-central and southwest China. Here the channels are narrower, deeper, and more stable than those in the plain areas. Bottoms are generally of sand

and gravel. Forging by vehicles is possible during low stages at many places and numerous suspension bridges in southwest China could aid the crossing of foot troops.

Finally there are the rivers in the mountainous areas of West China, where the channels, except in some sections of the Yangtze and its tributaries, are generally very narrow and deep, flowing through rugged canyons and gorges. Bottoms are rocky and strewn with boulders. Most of the rivers are navigable only for boats of 3 tons or less. Vehicular crossing sites are very scarce.

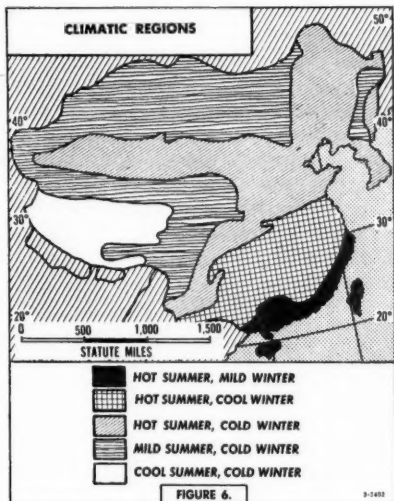
Floods of the major streams, either naturally or artificially, have outstanding military significance in eastern China. On the Yellow River, particularly, when breaks in the dikes occur or when the river floods because of heavy rains, thousands of square miles are inundated making ground operations impossible. Although the Yangtze and the Si Kiang present lesser problems in this respect, disastrous floods have occurred on both rivers. Flood threats are greatest along the lower Yellow River, the Wei River, the Huai River, and the Hankow Lake area along the Yangtze River.

Two other drainage features of note are the large lake areas and canal areas. The large lake area lies along the Yangtze River system. These lakes are generally shallow with extensive flat shores, cut by many inlets and channels, and are entered by many tributaries. They are all navigable to the extent that they do not hinder any traffic that the rest of the Yangtze will carry in the area. They are effective military barriers.

The canal areas lie along the east coast primarily in the Yangtze Delta, the North China Plain, the Hankow Lake area, and the Si Kiang Delta. These canals are a serious barrier to overland movement. Troops marching in the canal area would require innumerable small bridging or ferrying operations.

Climate and Weather

China, located at the eastern portion of a large continental land mass, has a climate that is predominantly continental, although maritime effects are experienced throughout the area. Generally speaking it is comparable with that of the United States. (See Figure 6.) As a matter of fact, with the exception of the Mediter-



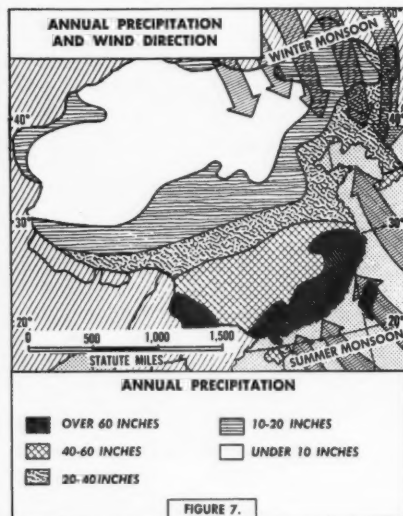
anean type (Southern California) and the west coast marine type (United States Northwest), all the major climatic types of the United States find their approximate counterparts in China.

The most important factor affecting China's climate is, of course, the monsoon, a large-scale periodic movement of cold and warm air masses. (See Figure 7.) During the summer months, the cooler air from the Pacific moves toward the continent of Asia, and causes heavy rainfall when it meets with the warmer air of Asia. In winter, the cold, dry air moving eastward from the interior of Asia brings extremely cold air to North China and Manchuria. No continent has such a vast circulation of warm and cold air masses

as Asia. The winter monsoon is more marked and persistent, and the change from summer to winter is pronounced, particularly in the north. The summer monsoon is gentle in approach and the resulting rainfall steadily increases to a maximum during the period June-August.

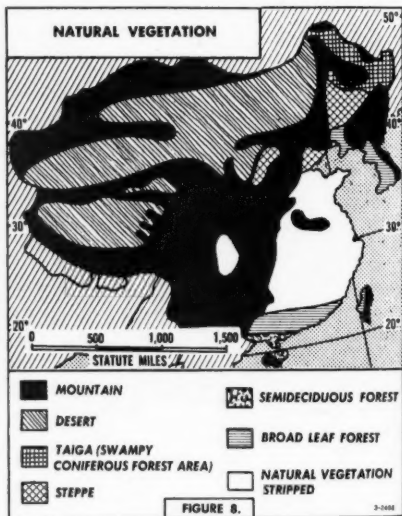
Much of the heaviest rainfall is associated with typhoons, which are sharp

regional differences among the various major geographic divisions of China. Winter temperature averages over the area range from 62 degrees Fahrenheit on the south coast to 15 degrees below zero Fahrenheit in northern Manchuria. The area of China with extreme winters is Manchuria, which is colder than other areas located in similar latitudes. As a



cyclonic disturbances coming from tropical latitudes north of the equator. These are felt chiefly along the coasts. In general, about half of all typhoons develop winds of hurricane force—that is, more than 75 miles an hour. In some cases a single typhoon is dominant, but in others during the period of maximum frequency, from July to October, storms may follow one another and two or more may be experienced in different regions at the same time. In July and August, typhoons occasionally penetrate sufficiently far inland to cause strong winds as far up the Yangtze as Hankow.

As to the actual conditions of annual temperature and rainfall, there are great



result, winter freezing in Manchuria extends to a soil depth of from 5 to 8 feet. In the northern highlands of the Khingan Ranges, the soil may be frozen below a depth of 12 feet. The Sungari River is frozen over for 5 months and the Amur for at least 6 months. Tibet and Mongolia also experience subzero winters.

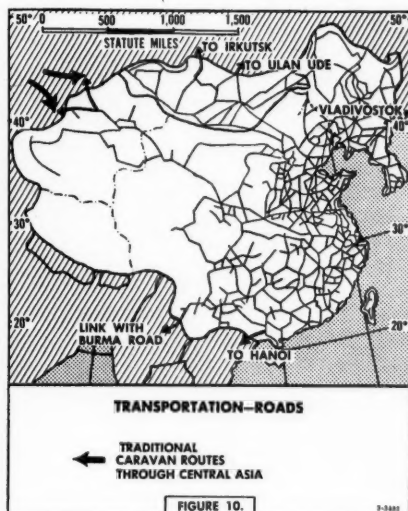
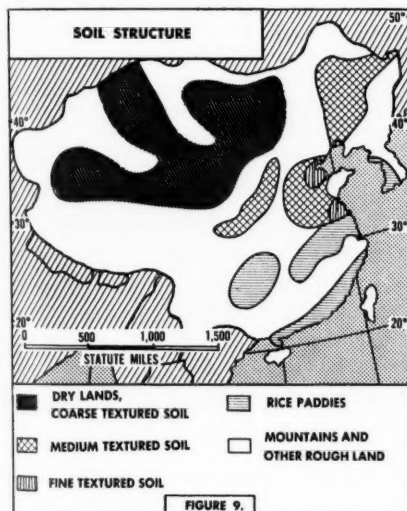
North China has 1 to 3 months with mean temperatures below freezing, and rivers in the area are generally frozen over for some time. In the Yangtze Valley there is a marked cool season of about 4 months and the mean monthly temperatures are extremely low for the latitude. Ice may form in the rivers during this period. Winter temperatures increase

steadily from the Yangtze Valley southward and subtropical conditions are found around the Canton Delta, the Si Kiang Basin, and the south China coast.

Annual rainfall is heaviest in southern and southeast China and gradually decreases from the south and southeast to the north and northwest. In general, rainfall in all sections of China shows a

terraced for agriculture. In many regions, great stretches of land have been completely deforested—this is characteristic of the North China Plain. (See Figure 8.)

North of the Tsin Ling Shan divide, various types of open vegetation are found grading from grasses and bushes through increasingly sparse types of grassland and steppe to actual desert conditions in Mon-



definite trend toward a summer maximum with July as the wettest month. Much of the total precipitation for an area comes in falls of great intensity causing serious soil erosion and the flooding of various river courses.

Snowfall is not heavy throughout the entire area as the winter months are dry. Snow is rare in the south but it may occur from December to March in the Yangtze Valley, from November to April in North China, and from October to April in Manchuria and Mongolia.

Natural vegetation throughout the area has been extensively altered by man. Level lands are intensively cultivated and even hills and mountains are extensively

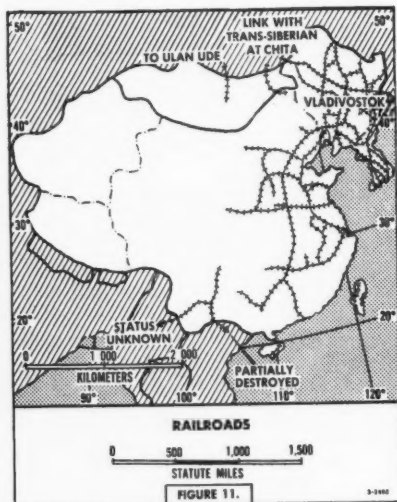
golia and Sinkiang. Small patches of coniferous and deciduous forests remain in areas of North China, located in uplands where the altitude has brought about great precipitation. The North China Plain is the largest area of continuous cultivation in the country, and has been settled so long that there is now little trace of the original vegetation.

The Manchurian Plain is steppe country with undulating terrain and associated level stream valleys. The Eastern Highlands of Manchuria are forested and contain great stands of timber. Southern Manchuria is characterized by mid-latitude mixed forest; generally broadleaf conifer.

Evergreen and broadleaf forest is char-

acteristic of central and South China, with a proportion of subtropical forms in the south. The Yangtze Basin has a highly mixed type vegetation, while the Si Kiang Basin is principally subtropical. In this region, broadleaf-conifer trees dominate the landscape and are mixed with deciduous trees and bamboo.

Rice, a crop widely cultivated in the



Orient, is grown in large areas of central and South China. Rice cultivation may be encountered either in level ground regions or among areas of hill country where extensive terrace systems have been developed. When the rice fields in the valleys and on the plains are not flooded, they offer no great obstacle to the movement of troops or to the progress of light tracked vehicles. Upland rice, cultivated in terraced fields, may be seen in many parts of China. Terracing is usually restricted by the thinness of the soil and by the general lack of water. These terraced fields are barriers for movement of mechanized forces. The degree of slope, in addition to the soil condition of terraced fields, affects trafficability.

Soil Trafficability

The representation in Figure 9 approximates the general conditions of soil structure in China. The dry lands include the great stretches of the Sinkiang and Gobi Deserts, and the vast Mongolian Plateau. These are considered to be generally trafficable at all times. Medium textured soils characterize the Manchurian Plain and the areas of North China. This type of soil is trafficable in dry weather, but is generally nontrafficable from June to September. The fine textured alluvial soils of loam, silt, and clay are nontrafficable from May to September. Rice paddy soils are generally trafficable except when flooded. Mountains and other rough land, making up a large portion of China, comprise areas where terrain and vegetation determines trafficability regardless of soil conditions or structure.

Transportation

Transportation in China is characterized by special conditions which are of military significance. Generally, road and railroad networks are limited and have suffered damage from war and civil conflict. Normal maintenance has been neglected and the overland transportation system throughout the area is inadequate for large-scale, modern military operations and movements. Figures 10 and 11, taken together with Figure 5, reflect an approximation of the transportation system of China. In this connection, the rail and road nets shown do not illustrate the extent of damage or rehabilitation.

Days of Travel

Poor communications have handicapped China for centuries. It is common to measure distances there in terms of days of travel rather than by miles. In this sense, distances are not comparable with those in more highly developed regions.

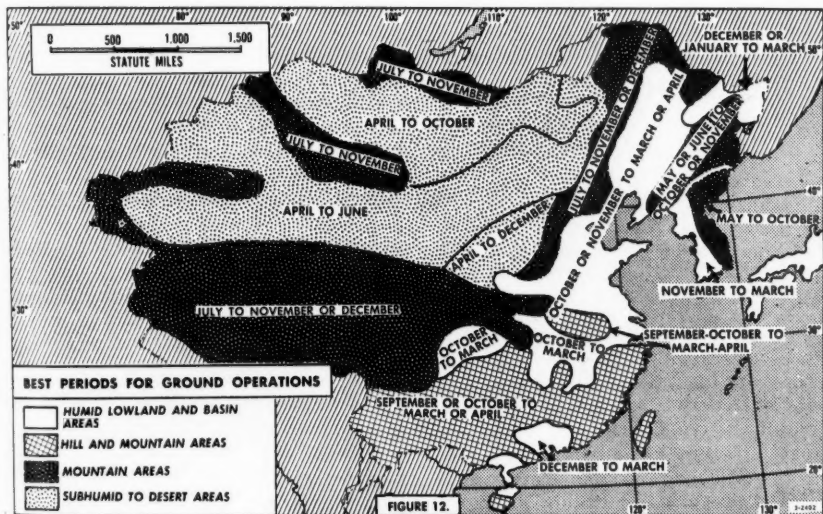
Regions previously held by the Japanese are notable for their relatively dense

transportation networks. In Manchuria, the relative density of rail and highway facilities complement Japanese military and economic activities. The principal east-west rail route across Manchuria in the northern area is of great importance to the Soviet Union since it provided the most direct overland access to Vladivostok.

Overland transportation in the area has not been sufficiently developed to support large-scale military operations. The few

Railroads are but little better than the roads. Civil war, retarded industrial development, and difficult terrain, as well as a shortage of ballast and a lack of local timber for ties in many areas, are all handicaps to improvement of the rail system. Except to a limited degree in the area of principal cities, railroads are inadequate to support sustained military operations.

Water transportation is the most highly



motor roads that do exist are narrow and poorly surfaced. Networks of roads are relatively dense in the northeast, east, and southeast. However, even in these areas roads and bridges are poorly constructed and often are of inadequate strength and size to carry normal military traffic. The construction of roads was less difficult in the north where most of the land is level. In the south, construction has been handicapped by unfavorable topography. Very few roads are paved with concrete or asphalt, and those that are paved are in poor state of repair. The best construction uses water-bound macadam or gravel.

developed method of transportation and is of considerable importance throughout China. Rivers provide access to the interior and even to relatively remote areas. Although many methods are primitive, and this means of transportation is restricted to the rivers and canals, it offers a means of moving great tonnages.

Air transportation is used widely throughout China, and movement of bulk tonnage by air is common. Military operations would probably require the great bulk of supplies to be moved by water, supplemented by air supply to advance echelons.

Population

One of the most significant features of China is the heavy concentration of the population along the coastal plains and in a few of the broad river valleys. About six-sevenths of the total population is concentrated in about one-fourth of the total land area. This concentration may be even more startlingly reflected by the fact that 200 million people, about half of China's total population, are concentrated in an area (the Yangtze-North China Plain regions) of only about 200,000 to 250,000 square miles which represents only about 5 to 6 percent of the total land area.

Ground Operations Calendar

It is extremely difficult to determine any definite period of time that would be the best period for ground operations throughout the whole of China because of its size and many geographical and climatic complexities. However, by dividing China into various distinct areas, general conclusions can be reached.

The most favorable periods for ground operations in the humid lowland and basin areas of eastern China and the hill and mountainous areas of southeastern China are the fall and winter months. (See Figure 12.) In the mountain areas encircling the lowlands of eastern China, the favorable periods for operations are the summer months and early fall. And in the subhumid and desert areas of northwest China and Mongolia, the favorable periods for operations are the spring and summer months.

Within the eastern lowlands trafficability problems created by the combination of rains, swollen rivers, flooded rice-fields, and marshes make summer the worst possible season for military operations. However, the worst season for operations in some areas may be better than the most favorable season in other areas. Military operations in the Tibetan Highlands, for

example, would be attended with special difficulties regardless of the season. High altitudes together with intense sunshine and strong radiation produce sharp temperature contrasts from day to night and from sun to shade.

It is possible that military personnel would suffer sunburn at the same time their feet were being frostbitten. There is extreme heat and extreme cold within a 24-hour period.

Avenues of Approach

The critical areas of China are certainly the lowland plain areas of the east. Here are located the political and industrial centers as well as the basic agricultural areas. In addition, more than half the population of China is to be found here. It is noteworthy that the Japanese Army, although it controlled Manchuria and Korea, never penetrated substantially farther into China than the lowland plains areas. Therefore, in considering avenues of approach into China we must keep these critical areas in mind.

The greater part of China is poorly suited to large-scale military operations because of its mountain masses, large desert areas, poor roads and general lack of other means of communications, multitude of rivers and canals, rice paddies and irrigation ditches, and extremes of temperature and climatic conditions. However, it is vulnerable to attack from land and sea as indicated in Figure 13 by the arrows representing primary and secondary avenues of approach into and within China.

Major Landing Areas

From the sea, the major landing areas are in the vicinity of the four principal ports: Shanghai, Dairen, Tsingtao, and Hong Kong. These are the only ports in China with facilities adequate to handle the requirements of a major force. Other good landing beaches are available, es-

pecially along the southeast coast in the vicinity of Wenchow, Foochow, Amoy, and Swatow, but these areas are backed by rugged and forested mountainous terrain which is only a short distance from the coast. Therefore, although these beaches must be considered, movement inland would be easiest at or north of Shanghai if it were attempted in the fall or winter season.

A glance at Figure 13 and Figure 3 (physiographic sketch of China) points up the fact that China is separated from the remainder of Asia by mountain masses beginning in the southwest with the Pamirs and the Himalayas and extending both to the north and northeast as far as the Khingan Shan of Manchuria. These ranges, because of their extreme altitudes, rugged terrain, and great extent, form an almost continuous barrier across two-thirds of China. This barrier can be penetrated at several places on the northeast, north, northwest, southwest, and south.

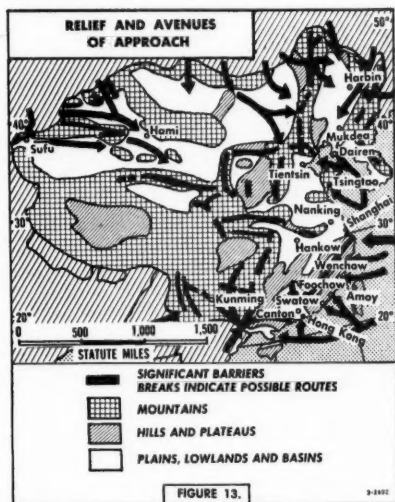
In the south, a road and possibly a railroad (present condition unknown) run to Hanoi in French Indochina. Farther west the Burma Road runs from Kunming to Lashio. In the northwest, in Sinkiang Province, the traditional routes of the silk caravans are traced by present-day roads made possible by mountain passes and oases in the elevated desert plateau.

In the north, a scant half-dozen roads and two railroads cross the Altai-Sayan Ranges into Mongolia from Siberia. In Manchuria, the mountain barrier is pierced by several railways linking that area with various portions of the Trans-Siberian Railway. Although the majority of these routes through the mountain barrier are inadequate for major forces and are far removed from the critical areas, they must be considered in any study of this region since they constitute the best avenues of approach from neighboring Asiatic countries.

Conclusions

1. Because of its geographical position, large population, and size, China is in a favorable position to play a major role in shaping the political alignments of the periphery states which surround it. These states could tip the scales in favor of either the free world or the Soviet world in the struggle for the balance of power.

2. Of secondary immediate strategic significance, but with important long-



range implications within China itself, is the threatened expansion of Chinese communism by the utilization of its position and recent expansion as a springboard for the infiltration and subjection of military conquest of India, Pakistan, and states to the south.

3. Economically, China is an important factor in the lives of its Japanese and Soviet neighbors—for Japan, as a market and as a source of foodstuffs and industrial raw materials; for the Soviet Union, as an access to the warm-water ports of Dairen and Port Arthur in Manchuria. Of still greater military significance are the available resources of North China

and Manchuria, which if properly developed, can lead to the development of heavy industry in this area.

4. Most of China is poorly suited to large-scale military operations because of its mountain masses, large desert areas, poor roads and general lack of other means of communications, multitude of rivers, canals, rice paddies, and irrigation ditches, and extremes of temperature and climate. However, it is vulnerable to attack from land and sea. The dense net of rivers, lakes, and canals with their potential use as avenues of approach and as barriers command special attention in planning military operations in the area.

5. In planning for any military operation it is necessary to determine early the critical area or areas to be seized. It is quite obvious that the critical areas of China are the lowland plains areas of the east, for here are located the political and industrial centers, the basic agricultural areas, as well as more than half the population of China.

6. Keeping the critical areas in mind, the next matter to consider is the best way to approach the critical areas selected. Here again it is obvious that the best approaches to the lowland plains areas are from the seas. It is possible to approach

the critical areas from land bases in the west; however, to do so would demand a long, difficult operation over a great expanse of relatively unimportant China before an attack could be launched to seize the lowland plains areas.

7. It is extremely difficult to determine the period which would be the best for ground operations throughout the whole of China because of its size and many geographical and climatic complexities. However, by determining the general area in which operations are to be conducted, general conclusions can be reached. The most favorable periods for ground operations in the critical lowland plains areas of eastern China are the fall and winter months, in the subhumid and desert areas of northwest China and Mongolia are the spring and summer months, and in the mountain areas encircling the lowland plains areas of eastern China are the summer months and early fall.

8. As a final conclusion to the study of the military geography of China it may be said that although China is vulnerable to attack from land and sea, the best avenues of approach to the critical areas are from the sea, and that ground operations in the critical areas would be most favorable during the fall and winter months.

Just as an effective information program is an essential *part* of training, available educational opportunities are an important and valuable *adjunct* to training. The young American citizen who enlists or is inducted into the armed forces must not be allowed to stagnate mentally from then on. He must not be cut off from the institutions and activities that stimulate mental growth.

Major General John M. Devine

WAR DOGS

BASED upon experience gained in World War II, the German Shepherd has been selected by the Army as the standard breed to be used as war dogs. The Shepherd has courage, stamina, and will not cower under fire. He can withstand a greater range of extreme weather conditions than most other breeds, and he is easy to train.

The Army's physical requirements for the dogs are high. The dog must be a male from 12 to 30 months old; weigh a minimum of 50 pounds; and conform to the German Shepherd type. He must be well proportioned, agile, and strong.

Basic training begins after the dog has been in quarantine for 21 days. The dog learns to obey promptly such commands as "heel, sit, stay, come, down, jump," and to alert at the command "watch him!" Each dog receives 2 hours of daily instruction for 30 days, worked by the same trainer. The trainer puts the dog through his paces on a leash because the dog will operate leashed in the field.

Having learned to obey the basic commands, the dog is taught to trust one person—his handler. Aggressiveness—a necessity in any war dog—is developed by "agitating" the dog. The "agitator," in a padded suit, baits the dog, and in the fight which ensues, the dog is permitted to "win." This gives the animal confidence and makes him feel unbeatable.

After his 30 days of basic training the dog is ready to go into advanced training, either as a scout or sentry, with his handler—the soldier who will work with him in the field—who also has been re-

ceiving basic training in the handling of dogs.

The sentry-dog and soldier-handler go through a 30-day on-the-job training program. The soldier learns how to control his dog, read his dog's "alert" signals, and take advantage of the dog's acute hearing and smelling senses.

Such sentry teams have been saving the taxpayers' money by preventing the theft of supplies from military warehouses and depots. As an example of their effectiveness; in Japan, warehouses guarded by an infantry battalion over a 4-month period reported a loss of matériel valued at \$600,000, through theft. The infantry battalion was replaced by 65 dogs and 125 men, and over a 10-month period not a single loss was reported.

Scout dogs have been credited with reducing battle patrol casualties in Korea by 60 percent. Patrols can penetrate deeper and move faster with less risk of casualties when they are spearheaded by dogs.

Scout dogs are given a different type of training from that which is given to sentry dogs. The scout dogs are taught to obey silent hand-signals and not to bark. They are taught to run, crouch, crawl, and "hit the dirt" entirely on hand-signal.

The handlers and their dogs, whether they are scout or sentry dogs, spend long hours in the field together practicing the use of the same commands they will use in combat over and over again until they both reach perfection through repetition.

The use of war dogs in Korea has reduced patrol casualties by 60 percent. War dogs also have eased our manpower shortage and saved thousands of dollars by protecting Army property at home and abroad

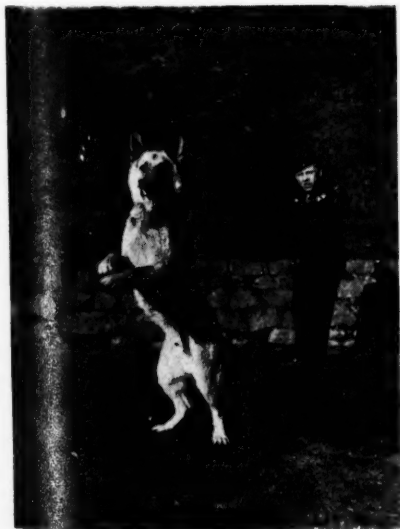


After a dog has learned basic commands, he is then taught to fear no man. This training instills confidence in the dog and makes him feel unbeatable. Above, a sentry dog attacking an "agitator" during training. Below, a scout dog and his trainer routing a decoy in a training exercise at Camp Carson, Colorado.—Department of Defense photos.





Based upon experience gained in World War II, the German Shepherd has been selected as the standard breed for scout and sentry duty. Above, men and dogs standing at attention after training. Below left, a trainer working with a sentry dog. Below right, a sentry and his dog on duty on Okinawa in the Pacific.—Department of Defense photos.





The German Shepherd has the temperament for army life. He has courage, will not cover under fire, and is capable of a high state of training. Above, a war dog camp site in Germany. Below left, a handler training his dog to leap over an obstacle. Below right, a dog scaling an 8-foot wall, urged by his trainer.—Department of Defense photos.





A dog must go through an extensive training program before he can qualify as a scout in the field or a sentry at a military installation. Above, several dog and man teams training together at Camp Carson, Colorado. Below, a handler training his scout dog the "down" and "stay" position by a silent hand-signal.—Department of Defense photos.





Dog handlers receive from 8 to 12 weeks of classroom and field instruction during which time they learn to care for the dog as well as to train him. Above, future handlers receiving instruction in the grooming of dogs in Kaiserslautern, Germany. Below, an Air Force guard standing duty with his sentry dog in Korea.—Department of Defense photos.



MILITARY NOTES

AROUND THE WORLD

UNITED STATES

Korea Veterans

More than 53,000 of the 84,000 veterans in training under the Korean GI Bill are in college, according to an announcement by the Veterans Administration. More than 21,000 are in schools below college level, the agency added, with most of them in trade and vocational institutions. About 9,000 are receiving on-the-job training, and about 500 are using their benefits to get on-the-farm experience.—News release.

Submarine-Fired Missile

The Navy has announced that it now has in operation a submarine carrying a faster-than-sound guided missile capable of blasting inland targets.

This means that all three military services—Army, Navy, and Air Force—have in production for combat and defense purposes a family of guided weapons.

What this new development adds up to is that the Navy now can sneak a submarine up to an enemy coast, launch its missile, and guide it to a distant target. The guided missile—called *Regulus*—looks and apparently operates like a small, pilotless, swept-wing jet fighter plane. Its fat, stubby body is some 30 feet long, but the pattern will vary according to the type of job the missile is designed to do.—News release.

Research Aircraft

The Bell *X-1A*, latest in the *X-1* research aircraft design series, is now undergoing initial flight tests at the Air Force Flight Test Center, Edwards, Cali-



The Air Force's *X-1A* research aircraft.

fornia. On completion of these tests, the *X-1A* will be turned over to the Air Force's Air Research and Development Command to obtain data which will be applied in the further development of this country's future high-performance aircraft.—News release.

Mighty Mite

The Marines have a handy midget-size vehicle—the Mighty Mite—that promises to solve the toughest transport problems of modern warfare.

The Mighty Mite is a compact affair—it weighs only 1,500 pounds, is only 100 inches long, and has a 64-inch wheel base. Its tiny 44-horsepower engine is air cooled



The Marine's versatile Mighty Mite.

and is easy to service. Under the stubby hood are crowded the accessories—all high enough so the midget can go through 50 inches of water.

The pint-size vehicle travels over terrain that would stop the versatile jeep of World War II, a much larger and heavier machine.

The secret of the vehicle's success is a new type of suspension which makes each wheel drive independently of the other three. The tubular frame serves as both muffler and exhaust pipe so there is no problem of replacing the exhaust system. Most of the joints are permanently lubricated, to reduce maintenance problems.—*The Christian Science Monitor.*

Field Training Exercises

Approximately 230,000 National Guardsmen and 105,000 Army Reservists will participate in intensive 2-week field training exercises this year.—News release.

Population Prediction

The Population Reference Bureau, a privately endowed group that investigates population problems, predicted recently that the earth's population probably will double to 5 billion persons in the next 70 years if the present birth and death rates continue.—News release.

Contamination Detector

The Food and Drug Administration now has a device that can tell quickly whether foodstuffs have been contaminated by atomic radiation.

In the event of an atomic attack, the device would enable Federal, state, and local officials to segregate contaminated foods from those that survivors could eat safely.

Described as only a "little gadget," the device gives a reading as to whether the food meets a "standard." If the foodstuff registers as high or higher than the standard, then the food has the atomic contamination to the point that it would not be safe to eat. However, if it registers less than the standard, it would be free of atomic contamination and edible.—News release.

Navy Jet

The Navy has announced the cancellation of a contract calling for the production of 100 Grumman *Jaguar* jet fighters of an advanced experimental design.

Twelve of the planes already in production will be completed, however.

The *Jaguar*, designated the *F10F*, is among the first military aircraft designed with a variable-sweep wing, permitting the wings to be in a straight position for take-off and swept back at high altitudes.

The Navy said that the contract was canceled because tests in the past year disclosed that changes were necessary in design and shape. It said this would result in unacceptable delays in large-scale production.—News release.

Blimp Tested

The world's largest blimp recently completed its first test flight. The blimp, designated ZP2N, is the first production model of the Navy's largest nonrigid airship.—News release.

Parachute Tester

A supersonic sled zipping along steel rails at 1,500 miles an hour now is being used to test the design of new parachutes that some day may save the lives of fast-flying jet pilots.

From a standing start, the rocket-powered sled can reach its peak speed in only $4\frac{1}{2}$ seconds, but in that time it travels 5,500 feet—more than a mile. At its top speed, the sled is traveling about twice the speed of sound.

The sled, powered by a rocket engine, is currently being used to test parachutes and other equipment associated with jet planes. Experts figure if the equipment works satisfactorily on the sled, it should work on jet planes that travel about half as fast as the sled.

The sled is powered for only 8 seconds before its oxygen-alcohol liquid fuel supply gives out. It scoots along 10,000 feet of track similar in type and size to standard railroad rails, but smoother. A scoop dips into a trough of water lying between the rails to stop the sled in about 300 feet.

With adaptations, the sled can be used to reveal the effects of high speeds and fast stops on human beings. Its propulsion system can be used to assist airplane take-offs from runways or carriers.—*Science News Letter*.

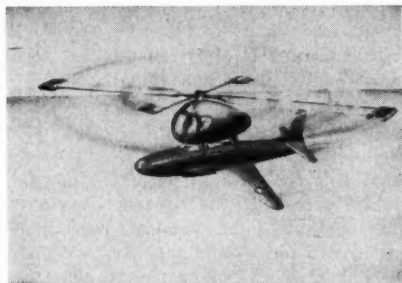
Carrier Conversion Project

The carrier *Bon Homme Richard* is undergoing a 62-million-dollar conversion project that will make her capable of handling the Navy's newest and heaviest jet planes. The project is expected to take $2\frac{1}{2}$ years to complete.—News release.

Helicopter Tugs

A radically new use for helicopters has been proposed—that of acting as an aerial tug to pick up and land fixed-wing aircraft in restricted areas.

In performing the new role, the helicopter tug would eliminate many of the objections presently cited against other types of convertible aircraft, as use of a detachable tug would allow the fixed



Artist's sketches of two phases of the tug operation: attached and pick-up in flight.

wing part of the composite aircraft to be designed for the highest speeds and longest ranges presently contemplated.

In effect, the tug, which would consist almost entirely of a large rotor system, would attach itself to the top of an airplane, carry the plane into the air, and launch it into forward flight. Arrived at its destination, a similar tug sent from the ground would land it.—*Hiller Copter News*.

Ammunition

More than 52 million rounds of artillery ammunition and in excess of 3 billion rounds of small-arms ammunition were produced by American industry and Army Ordnance manufacturing plants during 1952.—News release.

Synthetic Rubber

Synthetic rubber for tires and military equipment now can be mixed up in a big "heat exchanger" vat resembling an ice cream freezer in about 20 minutes, using new formulas and techniques.

In pilot plant tests, the process replaces a tedious 12- to 14-hour production rate now widely used in Government-owned plants making synthetic rubber.

The secret of the process lies in removing heat as the chemicals react inside the vat to form "cold" rubber. A coolant, similar to methanol antifreeze, was used to carry off the heat of chemical reaction inside the big vessel. The resulting liquid synthetic rubber latex then could be processed into solid form by conventional methods.

The success of the pilot plant tests indicates that the process may be adaptable to full-scale production.—*Science News Letter*.

Heavy Presses

The Department of Defense has approved the construction of 16 heavy presses which will practically revolutionize aircraft production.

The three-story-high presses can stamp out an airplane wing panel in a matter of minutes—a process which now takes about 100 man-hours. They will make virtually obsolete the present method of assembling airplanes by riveting and welding together innumerable small pieces.

Production of the giant presses is not expected to start until late this year.—News release.

ROTC Training

Approximately 20,000 Reserve Officers' Training Corps (ROTC) cadets will attend summer training at Army installations this year.

Successful completion of summer training is one of the prerequisites for a commission as a second lieutenant in the Army Reserve. Students also must complete the requirements for a baccalaureate degree.—*Army Times*.

Synthetic Oil for Jets

A synthetic oil has been developed to keep gears turning smoothly in tomorrow's higher-climbing, faster-flying supersonic jet aircraft.

Air Force officials said that the new oil is the first synthetic to meet military specifications for "lubricants of the future."

Using an ester base obtained from an unnamed alcohol-acid combination, the synthetic breaks some of the bonds now shackling jet aircraft designers. It works over a wider temperature range without becoming too sluggish to lubricate the small whizzing gears inside jet engines. It does not boil as soon as petroleum oils. It does not break down as easily into chemicals that will jam the engine works.

This lets designers create fighter airplanes that can fly higher and faster, and that are more maneuverable. It also lets the engineers design the plane to work as well in the Arctic's minus 65 degrees as in the tropic's sultry 100.

Although the new synthetic costs about 9 dollars a gallon to make, compared with the 40 cents a gallon price for regular oil, future planes will need only a few gallons each. It is believed that mass manufacture of the lubricant will lower the price.

The synthetic now is being used in tests in the United States and in Europe.—*Science News Letter*.

AWOL Policy

Some 2,000 soldiers with AWOL records have been sent to the Far East under the Army's policy of shipping out men who leave their stations to avoid overseas service. The Army does not look on the overseas assignment as a punishment, it was emphasized. Instead, the overseas billet is intended only to discourage any further tendencies to go "over the hill."—News release.

Scrap Metal

The Air Force has announced that during 1952 its installations in the continental United States accumulated 35 percent more aluminum, brass, copper, and other nonferrous scrap than it had in 1951, and that it had raised its collections of iron and steel scrap by 42 percent over those of the previous year.

The large increase in collections was in response to a national call for scrap metal collections to help keep the steel mills, foundries, and smelters running at capacity.

Search for scrap included dormant scrap, such as obsolete machinery, tools, jigs, dies, fixtures, and other equipment, including items that were broken, worn beyond repair, abandoned, or in need of parts that no longer could be obtained.

Most of the scrap was reused for defense orders.—News release.

Deceleration Chute

The *F-94C Starfire* has become the Air Force's first production fighter-type plane to be equipped with a deceleration chute. Studies show that the type of nylon chute finally adopted for the *F-94C* provides marked economies in tires, brakes, and landing gear maintenance, as well as enabling the 600-mile-an-hour plane to land in almost half the distance that would be necessary without the extra deceleration device.—News release.

Buckaroo

A limited number of *T-35 Buckaroo* military trainer and ground-support aircraft has been ordered through the Air Force for the Mutual Defense Assistance Program (MDAP).

The version of the *Buckaroo* ordered for MDAP will differ from the *YT-35* version which has been undergoing eval-



The *T-35* trainer and ground-support plane.

uation for more than a year in that it will be equipped to carry two .30-caliber machine guns with 500 rounds of ammunition for each gun, a gun camera, gun sight, and ten 2.25-inch rockets.

Powered by a 165-horsepower engine, the *T-35* has a maximum speed of 156 miles an hour and a cruising speed of 148 miles an hour. It has a span of 29 feet 2 inches, a length of 21 feet 6 inches, and a height of 6 feet 3 inches.—News release.

Shatter-Resistant Canopy

Laboratory tests have been completed on a new shatter-resistant canopy to protect jet fighter pilots. The first application of the new type canopy is planned for the *F-94C Starfire*.

Tests have shown that the canopy, made of triple-laminated plexiglass, remains shatter-resistant even when struck by flak or direct gunfire.—News release.

BRAZIL

Cement Shortage

The state of Espirito Santo has ordered 50,000 sacks of cement from Denmark to be used on public works. The large amount of building in the state has created a shortage of cement.—News release.

WESTERN GERMANY

Army Busses

Fast United States Army passenger busses now connect European headquarters in Heidelberg with bases at La Rochelle and Bordeaux, in southern France.

Intended to save servicemen both time and money, they carry up to 36 passengers and quantities of freight.

Army authorities provide box lunches where dining facilities are not available.—News release.

Nuclear Research Program

German atomic scientists are working out a vast nuclear research program, aimed at putting Germany in the lead with atomic "know-how."

One of Germany's top nuclear physicists plans to construct the world's largest cosmotron, a gigantic atom smasher, and is trying to form a "European atomic research institute" to finance the project.

The Germans have agreed to limit their atomic research to "non-military fields," although just how and where the borderline is to be drawn and enforced has not been settled.—News release.

DENMARK

Radioactive Isotopes

Scandinavia alone is buying one-quarter of all the radioactive isotopes exported from the United States.

In 1952, Denmark bought 184 shipments—more than any other country in the world—Sweden bought 167, Norway 40, and Finland 8, out of a total of 1,635 shipments exported by the United States.—*The Christian Science Monitor*.

UNION OF SOUTH AFRICA

Korea Matériel

The Union of South Africa recently paid the United States Air Force 5 million dollars for planes and supplies used in Korea.

South Africa previously had made payments totaling more than 9 million dollars.

A South African squadron has been flying with United Nations air forces in Korea since November 1950.—News release.

ITALY

Canal Project

Italian and Swiss waterways experts are planning to link north Italian ports on the Ligurian and Adriatic Seas with Swiss Lake Maggiore and the large industrial cities of north Italy.

The first phase of the project will join Novara, Turin, Milan, Cremona, Mantova, Andria, and Venice.

Other extensions will connect Novara to Lake Maggiore on the Swiss border, and to Savona and Genoa on the Ligurian Sea. It may be possible to extend the canal from Venice to Trieste.

The complicated system, of which about 150 miles are already dug, will be about 330 miles long, and will have a mean depth of about 10 feet.

Vessels of up to 600 tons will be able to navigate the new waterways day and night the year round.—News release.

ARGENTINA

Antarctic Base

The Argentine Navy has announced the establishment of a new base on Antarctic territory claimed by Great Britain. The base is on Luna Bay, on the east coast of Livingston Island, one of the South Shetland Islands.

The base consists of a barracks with accommodations for 12 men; radio sending and receiving facilities, furnaces, an infirmary, laboratories, a meteorological station, and shops.—News release.

OUTER MONGOLIA

National Budget

Outer Mongolia has designated 60 percent of the 1953 national budget for investment in "national economic construction and social and cultural undertakings," according to a report from Ulan Bator by the New China News Agency.—*The New York Times*.

FRANCE

Jet Plane-Helicopter

French plane manufacturers have unveiled a convertible jet-propelled aircraft-helicopter capable of both vertical motion and speedy horizontal flight.

The craft, large enough to carry a pilot and three passengers, was designed as a prototype for heavier convertible aircraft. It has a large revolving blade common to helicopters and fixed wings on either side of the fuselage. It is powered by two independently operated systems, one for the helicopter blade and the other for forward motion.—News release.

AUSTRALIA

Foreign Trade

Japan has resumed her prewar position as Australia's second best customer. The United Kingdom remains Australia's best customer, with France in third place. The United States, which for several years provided a market almost as large as that of the United Kingdom, has fallen to fourth place.—*The New York Times*.

Scientific Station

Australia will send an expedition to the Antarctic this year to establish a scientific station on the Antarctic continent. The expedition is expected to leave Melbourne next December and to set up its station in January. This will probably be in that part of the Australian Antarctic Territory southwest of Western Australia, but the exact site has not yet been determined.—*The New York Times*.

KOREA

Antiaircraft Artillery Batteries

Korean women are manning some of the antiaircraft artillery batteries in North Korea, according to a report by the New China News Agency.—News release.

JAPAN

Salvage Project

Japan has signed an agreement in Manila to salvage sunken ships in Philippine waters as part of her war reparations payment to the Philippines.—News release.

Trade Treaty

Japan and the United States recently signed a new treaty of friendship, commerce, and navigation. The treaty restores full commercial and friendly relations between the two countries for the first time since 1939.—News release.

COLOMBIA

Visa Requirements

Colombia and the United States have agreed to standardize their visa requirements. Visas will be classified as diplomatic, courtesy, tourist, student, transit, and temporary. The last will apply to traveling salesmen and other businessmen.

Visas will be granted free and will be good for unlimited entry and exist for 1 year.—News release.

NATIONALIST CHINA

Amphibious Training

A group of 76 United States Marines recently conducted a special training program for Chinese Nationalist Marines in amphibious operations.—News release.

Jet Fighter Wing

The Chinese Nationalist Air Force announced recently that it was organizing its first jet fighter wing.

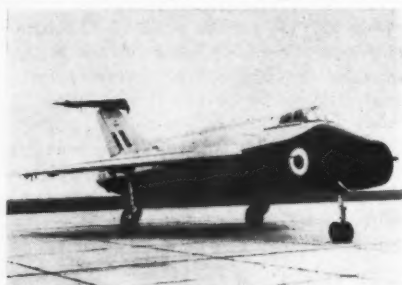
Personnel will be trained initially in T-33 trainers, after which they probably will fly F-86 Sabre jets.—News release.

GREAT BRITAIN

Research Aircraft

Great Britain's latest swept-back wing research aircraft—the *S.B./5*—recently completed its first flight.

Powered by a *Derwent* turbojet engine, the plane has been designed specifically for investigation into the low-speed characteristics of swept-back wings. Outstand-



The *S.B./5* swept-back wing research plane.

ing features are a sweep-back of 50 degrees and provision for adjustment so that this can be altered for various experiments.

The plane has a span of 35 feet 2 inches (at 50 degrees sweep), a length of 47 feet 4 inches, and a height of 16 feet 7 inches.

No other details have been released about the plane.—British Information Services release and photo.

Glass Naval Craft

The Admiralty is studying plans for constructing fast naval craft of laminated glass. The glass boats may evade magnetic mines, and would be impervious to corrosion and dry rot.—News release.

Altitude Mark

A twin-engine *Canberra* jet bomber, powered by new *Olympus* turbojet engines, recently climbed above 60,000 feet, setting what the Air Ministry said was an unofficial record for a bomber. The world record is 59,446 feet, set by a British *Vampire* jet fighter in 1948.—News release.

Antisubmarine Helicopters

The British Navy intends to develop helicopters capable of hunting out and attacking enemy submarines, according to an announcement by the Society of British Aircraft Constructors.

The announcement stated that the helicopters would be ship based and operate on medium-range patrols.—News release.

Plating Alloy

A new zinc and iron alloy has distinct possibilities as a steel coating and may be used as a substitute for costlier nickel as an undercoating for chromium plating, according to the British Iron and Steel Research Association. It has been found that a coating of 5 percent zinc and 95 percent iron has "remarkable properties" when deposited on steel by an electrolytic method. It is claimed to be nearly as bright as a perfect mirror. It is very hard, it adheres to the steel tightly, and, most important of all, it fills up the hollows of uneven surfaces in a "smoothing action."

—*The New York Times*.

Atomic Warfare

The Royal Navy is well advanced in preparations for possible atom attack, with 11,000 officers and men trained in atom bomb countermeasures, some ships streamlined against the threat of this type of warfare, and scientists attached to the staffs of its fleet commanders.—British Information Services.

Korea Medal

Queen Elizabeth II has approved the design of a medal to be awarded to British Commonwealth forces for service in Korea. One side of the medal shows the uncrowned head of the Queen and the other a representation of Hercules slaying the 9-headed hydra of Greek mythology. The ribbon has three yellow and two light blue vertical stripes.—News release.

CANADA

Military Aid

Canada has agreed to ship some 300 new mobile radar units—still on the security list—to its North Atlantic Treaty Organization allies overseas under mutual aid. Some of these units, valued at about \$90,000 each, have already been shipped.

In addition, Canada has agreed to provide Great Britain and other European allies with 6 minesweepers, 150 *Wasp* trainer aircraft engines, propellants for shell filling, and a huge amount of ammunition, all to be shipped this year.

Control over distribution of this equipment will be in the hands of North Atlantic Treaty Organization headquarters.

This equipment will be in addition to 245 *Sabre* jet fighters which Canada is sending to Great Britain this year.—News release.

EGYPT

Reclamation Project

Egypt and the United States recently signed an agreement launching the biggest single Point Four project undertaken so far in the Middle East. By reclaiming 20,000 feddans of marshland (a feddan is 1.038 acres) in the Nile Delta province of Buheira and 60,000 feddans of desert wasteland in Fayum Province, the project aims to provide farms for 16,000 landless families.

The project is associated with a land reform law promulgated last September, which seeks not only the break-up and distribution of huge estates but the creation of new usable land for the growing population. Under the terms of the agreement, the reclaimed land is to be parceled into farms of 5 feddans each to give the means of subsistence to about 60,000 men, women, and children.

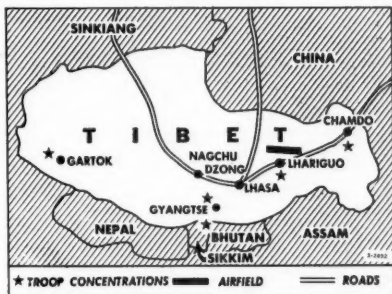
The cost of the project is estimated at about 25 million dollars, of which the United States will put up 10 million dollars.—*The New York Times*.

TIBET

Frontier Being Fortified

The Chinese Communists are building up a chain of military posts along the southern Himalayan frontier of Tibet, bordering on India, Nepal, and the Indian-protected states of Sikkim and Bhutan.

Strong concentrations of Chinese troops are reported at Chamdo in eastern Tibet; in and around Lhasa itself; at Gartok



and Gyantse; and in frontier posts all along the Himalayan region.

Although all the Chinese in Tibet are in military uniform, at least half of them are engaged in more or less civilian occupations, from the building of roads and barracks to irrigation and farming and administrative posts in offices and banks.

The largest force of Chinese military labor is employed in building a highway from Sinkiang Province, in the heart of Chinese Asia, through western Tibet to Lhasa. A first 500-mile strip of all-weather road is reported to have been completed. Two more military roads will eventually lead from China into the Tibetan capital, one from the north through Nagchu Dزون, and the other through Chamdo.

According to reports, only one air strip has been built in Tibet. This is located at Lhariguo about 170 miles from Lhasa. There have been reports that an airfield is to be built at Lhasa, but as yet there have been no indications of plans going ahead.—News release.

PANAMA CANAL ZONE

Construction Project

Plans have been approved for a construction project which will increase "substantially" the capacity of the Panama Canal.

The project, which is expected to cost around 26½ million dollars, will require about 10 years to complete, and should meet anticipated needs for the next 40 to 50 years.—News release.

EASTERN GERMANY

Berlin to Moscow Air Service

Direct daily air service was inaugurated recently between East Berlin and Moscow. Previously, air travel between the two cities was by way of Prague on a twice-a-week schedule.—News release.

Fortification Project

The United States High Commission newspaper *Neue Zeitung* has said that East German Communists are fortifying the Baltic Sea island of Rügen and deporting most of its 91,000 inhabitants.

The newspaper said that some 9,000 Soviet soldiers and a 30,000-man division of the East German People's Police are stationed on the island.

The newspaper said that thousands of workers are constructing "far-spread" fortifications on the island and that they are to be completed this fall.

Rügen, the largest German island, is located 2 miles off the Mecklenburg coast in the Baltic Sea.—News release.

Military Information and Training

The newspaper of the United States High Commissioner's office, *Neue Zeitung*, reported recently that Eastern Germany and Czechoslovakia had agreed on a system of exchanging military information and training. The newspaper said the treaty provided for the Czech Army to help Eastern Germany build its forces.—News release.

SWEDEN

Hydroelectric Power Plant

Plans are ready for Sweden's newest and largest hydroelectric power plant, which will add about 16 percent to the country's electric power supply when completed.

Construction on Stornorrforsten, as the 200 million kronor (about 38 million dollars) plant is being called, is expected to begin this fall. Like the huge generating station being built on Canada's Pacific coast, virtually everything will be buried in great rock caverns.

The plant represents a major step in boosting the present electric output from 20 billion kilowatt-hours a year to the goal of 33½ billion kilowatt-hours a year in 7 years.—*The Christian Science Monitor*.

Atom Bomb Shelters

Sweden is blasting deep into its rock mountains to build a vast system of atomic bombproof fortifications that will shelter everything vital to the defense of the country.

Lifting for the first time the secrecy on 10-year-old Operation *Granit*, defense officials said that it provides for 150 giant rock shelters for 800,000 persons.

Work also is well underway on plans to put the nation's key industries and virtually all the Swedish Air Force and Navy inside mountains.

Most of the nation's jet fighter bases have underground hangars at the present time, and it is planned that in the future virtually the entire Air Force of 1,500 planes will be based underground.

A vital part of the Swedish Navy already can dock in "numerous" secret harbors gouged from mountains along Sweden's Baltic coast. Space also has been blasted for naval yards in the solid rock.

Other underground installations include aircraft, tank, and munitions factories; hospitals; power plants; laboratories; fire stations; and storage depots.—News release.

FOREIGN MILITARY DIGESTS

The Art of Airlifting

Digested by the MILITARY REVIEW from an article by Hammond Innes
in "The Sphere" (Great Britain) 1 November 1952.

THE word "airlift" has become permanently allied in people's minds with Berlin. The Berlin Airlift received so much publicity, because it was a peacetime operation, that we are inclined to think of it as the one great aerial lift. Were this the case, the complex organization required to center, transport, and distribute the supplies, quite apart from the conveyor-belt flight schedule I saw operating at Gatow, could not possibly have been built up in the time.

All techniques are based on the practical foundations of trial and error, and had the Americans and ourselves had little or no previous experience of lifting goods by air, it is very doubtful if anyone would have been fool enough to imagine that we could supply a city of 2 million people with food, fuel, and the other necessities.

The history of airlifting goes back to World War I. I believe the first supply lift was for the relief of the besieged garrison of Kut, in 1916. It sounds absurd now, but over a period of nearly a fortnight Royal Flying Corps and Royal Navy Air Service aircraft managed to drop a total of 13 tons of supplies—the

equivalent of one larger plane load on the Berlin run 32 years later. Even this involved a major effort and casualties, for, using ordinary service machines with bomb racks removed and a guide release apparatus substituted, the maximum load was only 150 to 200 pounds. The technique employed for the drop was to enclose the food sack in a second sack to absorb the impact shock.

Development of this facet of aerial warfare, however, was slow. The first bomber-transport squadron of the Royal Air Force was formed in 1920 and these dual-purpose machines were of considerable value to oversea commands, supplying troops and evacuating civilians. The parachute drop became standard practice, and a large-scale experimental drop supplied the Chitral Relief Column in 1930.

Not until the late 1930's did the Royal Air Force acquire a transport plane proper. The *Hannibal* was not a happy choice and the Royal Air Force entered the war without a single plane really capable of meeting the supply work it would be called upon to do.

Very little in the way of airlift tech-

nique developed in the early stages of the war. Since it was a period of retreat, such lifts as occurred were chiefly of personnel. Airborne operations—the first being the attack on the Tragino aqueduct in Italy early in 1941—were small, and involved very little in the way of supply problems.

It was, in fact, in the Far Eastern theater that the airlift as we know it today was slowly and painfully evolved. Not surprisingly, the first big lift was initiated by the Americans. Mentally equipped to surmount any flight terrain difficulties and physically equipped with the sort of aircraft for the job, they faced up to their number one problem—the supply of the Chinese—with great realism and courage. The road link was gone. It was air or nothing. Colonel Old made the first flight over the Hump in 1942, and following this survey his airmen proved it could be flown by lifting out 13,000 Chinese troops for General Stilwell during the monsoon. Flying that aerial housewife, the *Dakota*, the Americans were pointing the way for those commanders who could look to the future.

Also not surprisingly, it was the British who initiated and carried out the first land strike of any size to be supplied and maintained from the air. This was Wingate's first Chindit expedition into north-central Burma in the spring of 1943.

Although the expedition could hardly be called a success, the cost, like Dieppe, has to be debited to experience. The lessons learned were put to good use later, and not only in the Far Eastern theater, for the problems he encountered were the same as those that had to be conquered before the big airborne landings of D-day and Arnhem could be planned and carried out.

What were these problems? They were less problems of operation than of preparation. The actual flying of the lift—maintenance of personnel and aircraft, methods of flight control, and the han-

dling of a large number of aircraft in all conditions of weather—involves the same problems that have to be handled in operating a heavy air strike. The problems peculiar to the airlift are almost wholly problems of ground organization.

Centering of Supplies

One of the major problems is the centering of supplies, requiring railheads or good roadheads. A trained ground organization is needed here to break down the supplies, repack, move to the loading aprons, and load into the planes on an ordered schedule or on a schedule that experience has proved to be the most useful from the point of view of the needs of the recipients.

Receiving Point Organization

What of the organization at the other end? Again this must depend on the nature of the operation. However, whether it is a drop or a landing, the receiving point must be organized, and in the latter case an air strip has to be constructed. Moreover, when the supplies have been flown in, a supply organization in reverse has to be in operation to handle and distribute cargoes according to priorities. In an area like the Far East, the whole operation was further complicated by the climate, which necessitated efficient housing of supplies at both ends to avoid wastage.

In ground organization we were better prepared than the Americans, for back in the days of the retreat from Burma, when the 31st Squadron of the Royal Air Force and the 2d Troop Carrier Squadron of the United States Army Air Forces were pioneering air supply, units of the Royal Indian Army Service Corps had been formed into air supply companies, and by 1943 five such companies were in existence.

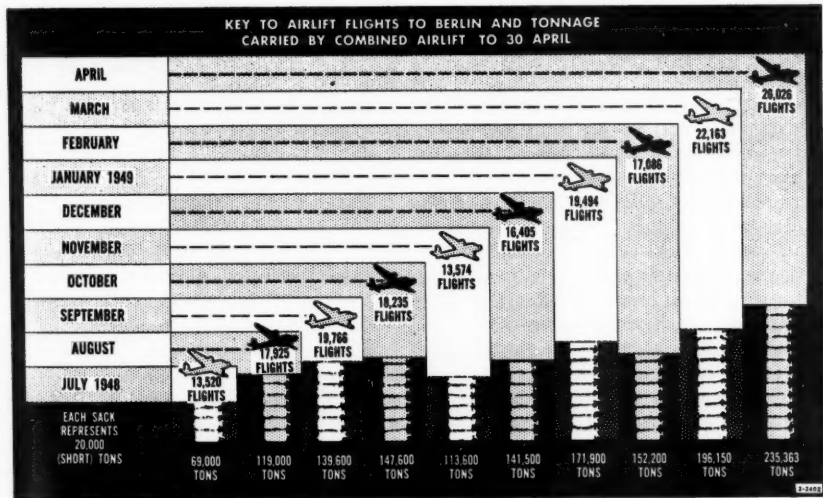
Wartime lifts developed along two lines—the operational lift and the supply lift. The operational lift was the more complex, for in its purely combat form it was the airborne landing, while at the other end

of its scope it merged into the stately routine of the supply lift. It required, however, higher morale and a greater urgency, since it was in support of a battlefield and its personnel had to be capable of sudden, sustained efforts.

Whether operational or supply, these lifts were Anglo-American affairs. In fact the whole technique of airlifting has been built up by these two allies jointly,

into two field organizations—RAMO and FAMO (rear and forward airfield maintenance organizations). These were the units responsible for the assembly, packing, and loading of supplies and their distribution at the receiving end. It was they who set the pattern for the smooth-running organization of the Berlin lift.

The best example of their work in the Burma campaign was at Sinthe. They com-



HOW THE BERLIN AIRLIFT GREW: This diagrammatic sketch illustrates the number of flights made and the tonnages carried during the period of July 1948 to April 1949.

each learning from the other. The Burma operations in 1945 were on an unprecedented scale. There were about 100 American and British transport squadrons comprising the combat cargo task force, and from January to March these aircraft lifted a total of 92,000 tons of supplies and 98,000 men.

The ground organization for the Fourteenth Army was British and it was largely on British initiative that the complex airfield technique of handling and loading was developed. The army air transport organization gradually grew

pleted the airfield with its 12 miles of perimeter tracks, unloading aprons, and dumps in 10 days. Within a few days of opening, the field was receiving 500 tons of supplies daily and within a week plane-landings had reached 200 daily.

I quote this from Roy McKelvie's book, *The War in Burma*:

The unloading routine was worked out to a fine art. As an aircraft landed it was flagged to its bay. A lorry drove up to the plane's open doorway (many transports flew without doors) and a British checker and eight Indian engineers unloaded the stores and took them to the requisite dump. The operation took only 13 minutes for a $4\frac{1}{2}$ -ton load.

That description of the off-loading technique in Burma at the end of the war might well be a description of off-loading at Gatow 3 years later, except that the Germans with two trucks were unloading 8- to 9-ton plane cargoes in the same time and the FAMO had become a FASO (forward airfield *supply* organization).

In the air, of course, the Americans—and certainly American planes—preponderated. At the peak period, 1945, Military Air Transportation Service, with its Navy equivalent, was operating some 3,500 transports. The Royal Air Force Transport Command at the same time had 673 aircraft. American Navy transport services were operating 55,000 miles of routes, which gives an indication of the scope of airlift requirement in the Pacific theater.

All these services both the United States Army Air Forces and the Royal Air Force were much curtailed after the war. Nevertheless, both services began moving aircraft and personnel to base airfields in Western Germany with the confidence born of vast experience when the balloon went up in June 1948. On 24 June, the Royal Air Force Transport Command declared the Berlin Airlift open by flying in 6½ tons of supplies for our own troops. The next day the United States Military Air Transportation Service flew in 80 tons for their troops. From that small beginning the lift grew at a fantastic rate, an Anglo-American demonstration of air power that reached a peak of 1,736 tons a day carried in 656 plane trips and which had a marked effect on the future course of international politics.

Once again the Americans outnumbered us in the air. However, while the disparity was even more noticeable in tonnage carried, for they were operating much larger aircraft, our own organization handled the bulk of the traffic. At the peak, the British airport of Gatow was coping with a total of more than 1,000 plane movements

a day and the control technique built up at that airport will be standard for highly concentrated short lifts for many years to come.

Timing and Monotony

I flew the lift at this period to get the background for my novel, *Air Bridge*, and my impressions were chiefly of split-second timing and the soul-destroying monotony of the routine. The aircraft was a cog in a great machine, a unit on the conveyor belt which the Germans so aptly called the "air bridge." Wunstorf in the rain was a great, black, glistening sheet of tarmac ringed with sidings and stacked with aircraft waiting in serried ranks for the take-off. The barracks were a seething, dead-weary dormitory in which there was no night and no day, only the constant getting up and feeding and going to bed of men who ticked off hours flown on their schedule sheets like boys marking off the days to the end of term.

Of the flight itself I was chiefly conscious of the navigator passing on to the pilot the number of seconds he was early or late over each beacon. A latitude of only 45 seconds either side of touch-down time was allowed—outside of that and he was sent back to base with his load. The pattern, both in time and height, was all-important.

My first impression of Gatow was one of disappointment. With 500 planes a day landing it was natural to expect the airfield to be chock-full with aircraft. Instead, it was almost empty. As we swung off the runway the next *York* was landing behind us. Flagged into the off-loading bay, trucks with their German teams were already moving out to meet us. Before I was out of my seat, the doors were open, the first truck backed up, and unloading had begun. Royal Army Service Corps personnel controlled this operation from a lofty, scaffolded tower. The turn-round varied between 13 and 18 minutes; hence the

scarcity of aircraft. The organization was so good that there were never more than a handful of planes parked waiting on the unloading apron.

The most astonishing sight I saw was the maintenance of the lift throughout a heavy rain and electrical storm at night. The runway was one-directional. It had to be. Moreover, the wind was gusting 56 knots at right-angles across the approach. The storm was so bad that at one point the supervisor in the control tower ordered pilots to return to base. However, they continued to come in with their loads rather than face the return trip through the storm. Radar ground control approach talked them down on to a runway they could barely see in their spotlights because of the rain. The tricycle undercarriage of *Yorks* bounced heavily, but there were no casualties, confirmation of American conclusions that for this work the tricycle undercarriage is to be preferred; though shortly afterward a wave of *Dakotas* came in from Lubeck quite smoothly, admittedly piloted by highly experienced men.

Many Postwar Lifts

Although the most spectacular of the postwar lifts, the Berlin operation was by no means the only one. Since the start of the Korean conflict, lifts of many and varied kinds have been operated, and our own redeployment of forces in the Canal Zone was largely aerial. There is no doubt that, both for civil and military purposes, the airlift is and will remain an integral part of an air force's responsibilities.

It is doubtful whether there is much room for improvement in the ground technique, although every operation must in-

evitably present problems peculiar to itself and there is, therefore, a constant need for elasticity in the organization. Near-polar operations, such as have been carried out by American air-sea rescue squadrons stationed in Alaska or by our own recent Greenland expedition, are obvious examples.

There is, however, always room for improvements in the types of aircraft used for supply.

Larger Transports Needed

For the straightforward lift, the need is for bigger transports. The larger planes have proved more economical in every respect. End-loading is preferable to side-loading. For the operational lift, the problem of landing on small, hastily built air strips is paramount, and here that winged skyscraper, the Blackburn and General Aircraft *Universal Freighter*, with its reversible props and consequent short touchdown-to-standstill requirements, is perhaps our most interesting development. A plane I saw flying at Farnborough this year, which opens up new possibilities in airlifting, was the Bristol 10- to 12-seat helicopter. The Americans, although well in advance of us in helicopter design for military purposes, have so far done little to develop the transport potentialities of the machine. With our big weight lifters, such as the *Brabazon* and the *Princess*, I do not think we shall be short, in the future, of the right aircraft for the job. However, as in all things aviaional, we suffer from a big gap between prototype and production. Chief comment at this year's air display at Farnborough was—too much design, too little production.

German Strategy and its Errors in World War II

Translated and digested by the MILITARY REVIEW from an article by Colonel Pietro Mellano in "Rivista Militare" (Italy) November 1952.

AFTER every war, exaltation of the victor, together with the publicized views of persons of shallow judgment, often leads many people to the conclusion that superior methods in the conduct of operations and greater skill in the employment of the means were the logical and indisputable factors back of the victory.

World War II, with its ideological undercurrent, carried this tendency to an extreme, even to the point of an almost unanimous conclusion that Hitler's Germany was doomed to certain defeat from the very beginning.

Successful Conclusion Was Dubious

Without any question, the conflict launched by the Third Reich in 1939 bristled with difficulties from the very beginning, and its successful conclusion, therefore, was dubious. Favorable outcome was intimately bound to the possibilities of a quick decision, in order to prevent material losses and time from serving as an advantage to the allies, who possessed a greater potential military strength. However, in contrast with World War I, the allies did not have unity or an operative organization, and the possibilities of success on the part of Hitlerian Germany appeared quite favorable.

It was the conduct of the war (militarily and politically) on the part of the Germans that precluded the possibility of a favorable outcome of the struggle; it was the great strategic errors of the German High Command that headed Germany inexorably toward complete defeat.

I shall limit this article to discussing Germany's strategic errors; convinced that they were the principal—but not the only—elements that brought about the German catastrophe.

In 1939, the potential enemies of Germany were opposed to becoming involved in another world conflict.

Great Britain, always the most decisive enemy, had completely neglected preparation for ground warfare, by lulling herself to sleep with the illusion of the unalterable effectiveness of the blockade assured by the still pre-eminent power of her naval forces.

France, with the bitter memory of the terrible losses suffered in the first world conflict, sought, in the steel and concrete barrier of the Maginot Line, the means for shielding herself from a new invasion from the East.

The Soviet Union, almost insulated in the field of international relations and wholly given over to the realization of her 5-year plans, although actively engaged in the preparations of her armed forces, did not appear inclined or ready to launch herself, without studied calculation, into a conflict between the nations of the capitalistic world.

The United States was far away, with her eyes turned toward the Pacific as well as toward Europe. Moreover, her war machine (with the possible exception of her naval forces) was almost embryonic and required a long period in order to be readied and transported to the scene of action.

Primary Aim

Germany's primary aim was to take advantage of the lack of preparation on the part of her potential enemies in order to prevent the war from again assuming the form of a long drawn out war of attrition. This, however, would be unavoidable if Germany's enemies were given the time in which to avail themselves of their immense resources.

It was necessary, moreover, to avoid the risk of an encirclement from the East and West. This would have been a definite possibility if the war were conducted on two fronts. Therefore, it was necessary to hold the Soviet Union at bay for a certain length of time in order first to achieve victory in the West.

Efficient War Machine

The German war machine represented, in 1939, the most modern and efficient that could be created for the rapid and decisive warfare required for the attainment of the political and strategic aims of the Third Reich. The imposing mass of armored and motorized units, supported by a formidable tactical air force, constituted the means for a lightning break-through of the enemy fronts, and for overrunning the rear areas and vital centers of the territories of the enemy nations.

The Russo-German nonaggression pact of August 1939 provided Germany with temporary security against attack from the East and offered the opportunity to settle favorably the conflict with the Western world. If Germany could achieve victory over the West, the German armies would be able to realize the fundamental program of *Mein Kampf*—crushing the Soviet Union and laying open the immense area and resources of the country to exploitation. The political and military preparations that had been made appeared to ensure maximum success in Germany's plans for European domination. However, instead, events soon showed grave errors in both fields of the preparation. In spite of the brilliant tactical successes, the strategic errors that were committed compromised the situation in which the German armies were engaged.

At dawn on 1 September 1939, German military forces invaded Polish territory. On 8 September, German armored units reached the suburbs of Warsaw. On 23 September, the German High Command

announced the successful completion of the campaign in Poland.

The foregoing paragraph provides a brief, chronological account of the Germans first test of the new theory of blitz warfare.

The plan of operations was not different from the traditional strategy of Moltke and Von Schlieffen: concentrated maneuver over exterior lines with the envelopment and total destruction of the enemy as the ultimate objective.

The rapid and victorious Polish campaign demonstrated the importance of speed and mobility in modern warfare. This "first test" of the new German doctrine of war seemed likely to abolish forever the static war of attrition which had proved fatal to Germany in World War I.

The new era of motorized transportation offered to the German strategy—which was still almost entirely terrestrial—a Europe in which distances were now virtually reduced and in which it was possible to carry out, in rapidly succeeding phases, the grandiose plan of eliminating the traditional enemies of German hegemony on the European Continent.

In Moscow, the Russo-German nonaggression pact which had been initiated in Berlin in August continued, thereby eliminating the possibility of a threat from the East. However, as Hitler expressed it: "Russia presents no danger at the present moment, for the reason that we have concluded a treaty with her. On the other hand, we cannot attack her until we free ourselves from every danger from the West."

Strategic Plans Were Similar

The initial strategic plan worked out by the German High Command for the offensive against France and her allies followed almost the same lines as the plan of 1914: the principal effort was to be made by a powerful right wing sweeping across the Belgian plains; the forces in

the center of the line were to hold down the enemy forces and protect the moving flank; and the forces deployed on the left flank were to immobilize the French forces occupying the Maginot Line. It was on the preconceived basis of the development of this operational plan that the French High Command committed, at the beginning of the German offensive, the fundamental and decisive error of the battle in the West. It hurled the allied armies on the left wing (a full third of the best forces at its disposal) in the direction of Belgium and the Netherlands in an offensive battle. This placed these forces in the open with an exposed flank and in the worst condition for meeting the experienced German forces.

The underlying reason for the astounding success achieved by the Germans was this erroneous initial maneuver by the allied forces. Instead of having the weight in the right flank as in the 1914 plan, the Germans had weighted the center of the line with a formidable complex of armored and mechanized units. Unfortunately, the French and Belgian General Staffs had hastily estimated the area in the center of the front as an obstacle which could be crossed only with great difficulty by large units with modern equipment.

Having called attention to the basic elements of the German maneuver and the fatal, decisive error of the French countermove, all the rest was only a matter of execution. Once again, the Germans unleashed an operation that was flawless and vigorous; renewing, as on the fields of Poland, the astounding success achieved through the mass employment of armored divisions supported by powerful combat aviation.

The decision of the entire campaign (and not of the battle of Belgium alone) began to reveal itself when German armored forces suddenly appeared at the Meuse crossings between Dinant and Sedan, pivotal point of the entire French

deployment. This section of the front had been held by a small number of troops and inadequate reserves, and the German armored inundation, followed by the motorized divisions, swept on to the sea, meeting with scarcely any resistance. The allied forces rushing toward Belgium and the Netherlands were cut off and their fate was sealed. When this development occurred, the British forces began to concern themselves with the possibility of an escape by sea from the beaches at Dunkerque. It was useless to think of renewing, on the Somme and the Aisne, the "Miracle of the Marne." The modern, powerful, and dynamic German war machine could not be counted on to grant the necessary breathing spell, and, besides, the means, the methods, and the rapid tempo of mechanized warfare were very different from those of the preceding world war.

With the most efficient part of its forces cut off, and without the necessary armored or air means to support a determined stand, the French Army could do nothing but fall back toward Paris and the undefended areas back of the Maginot Line.

The instrument forged for blitz warfare by the German High Command had achieved its mission. Success had been rapid and grandiose—but *not complete!* Germany's strategic aim—to free herself of every danger from the West in order to have her hands free in the East—had been attained only partially. Great Britain, her major enemy, remained immovable in her combat post, secure against the possibilities of a *blitzkrieg* because of the natural antitank obstacle, the Channel.

First Strategic Error

The first great strategic error committed by the German High Command was now apparent. The German High Command had suffered the illusion that Great Britain would bend to her knees in defeat if—with the conquest of Holland, Belgium,

and France—she found herself caught in the strangling blockade that would be produced by the German submarines and the *Luftwaffe*. A major error, therefore, had been committed when the Germans failed to prevent the British evacuation from Dunkerque.

It is said that the German High Command wished to spare further wear and tear on its armored units, in order to save them for the battle against the remnants of the French Army in the south. Another explanation is that Hitler personally slowed down the action against Dunkerque in order to bring about the embarkation of the British forces, and thus render more facile a succeeding truce with Great Britain.

Both hypotheses militated against a logical and rational conduct of the operation. The French Army was already defeated; there was no need to reserve the armored units for the *coup de grace*. In permitting the evacuation of the British forces (rendered possible solely by lack of the engagement of German armored units which were already on the scene), the best and most experienced of Britain's troops were made available for future employment against Germany. Moreover, the evacuation of Dunkerque raised the morale of the English people and bolstered their will to resist.

To reduce England, an invasion of British soil thus became necessary. However, the German High Command, with its predominantly terrestrial strategic mentality, had almost ignored the fundamental problem of the means necessary for a great amphibious operation of this type. The hurried efforts to prepare for the invasion of Great Britain (Operation *Seelöwe*) were useless. Landing craft were not to be improvised, and the English Channel, at that time of the year, did not offer the necessary number of consecutive days of calm seas required for the initial and most difficult phase of the landing. More-

over, British home defenses had been strengthened by the troops which Germany had permitted to escape at Dunkerque.

Any effort to break the tenacious British will to resist now devolved on the *Luftwaffe*.

In the skies over Dunkerque, British fighters had given the first and unequivocal example of their powerful capacity for reaction. The battle in the skies over Britain subsequently inflicted a definite defeat on the squadrons of the *Luftwaffe*, which operated with the same tactics employed in Poland and France, when they were operating in close co-operation with the simultaneous action of the ground forces: intensive initial phase action against the enemy's airfields and aircraft in order to prepare the second phase action against the war industries. The German *Luftwaffe* recognized too late that it had erred in not having struck initially at the war industries; particularly the aircraft industries which turned out an unending stream of new planes which increased the efficiency of the Royal Air Force. By the time the *Luftwaffe* realized its error and attempted to attack the war industries, its power had been reduced; British industries had been moved to bomb-proof, underground plants; and additional reserves of aircraft had been built up through American lend-lease agreements. From then on, the *Luftwaffe* began its descending course. The English coasts remained inviolate, permitting British territory to be built up as the "springboard" from which was to be launched the destructive massed action against the German war potential and the decisive assault by the West against "Fortress Europe."

The Mediterranean Theater

Even after these grave errors had been committed, there still remained an area in which Germany could deal a mortal blow to the British Empire and its possibilities

of resistance—the Mediterranean theater.

After the German victory in France, this area, so vital to the British interests, presented itself like a ripe pear to a rapid and impetuous action that would ensure complete possession of this inland sea from Gibraltar to Suez. However, instead, the short-sighted strategic vision of the German High Command passed up the possibilities.

In this way, the subsequent German-Italian campaign in North Africa became a veritable strategic absurdity, inasmuch as it was inescapably bound up with the problem of logistics, which, in turn, was inescapably linked with the control of the seas and the possession of air superiority. The British lost no time in interposing both (control of the seas and air superiority) between the Germans and their objectives.

This grave strategic error (failure of Germany to exploit her success in the Mediterranean theater after the French collapse) was to have a decisive influence on the results of the subsequent conduct of the war. Renouncing the idea of inflicting a telling blow in that area which was so vital to the British, Germany abandoned her Mediterranean ally and her African possessions to certain annihilation, and thereby provided the allies the chance to establish another jumping-off base for the future assault on "Fortress Europe."

Two Prerequisites Lacking

With the failure to annihilate the British military power in the West, there ceased to exist two essential prerequisites for Germany's continental leadership:

1. The waging of a rapid and decisive war to exploit the powerful and dynamic war machine which had been forged during the preceding years of intense preparations.

2. The avoiding of the danger of a si-

multaneous struggle on two fronts, which had been fatal to Germany in World War I.

It is true the Soviet Union had not yet entered the struggle, but taking advantage of the favorable situation resulting from the German engagement, she had hurriedly assumed a threatening, expansionistic attitude toward the Baltic states and toward the Balkans. In fact, immediately following the collapse of France, she had begun the intensive production of war equipment for the Soviet Army.

For the Germans, the fight against the British Empire now gave signs of being a long one, and with those characteristics of a war of attrition that had marked the preceding world conflict. Therefore, the Germans believed that by instituting the old fundamental Hitlerian program of *Mein Kampf* they would be able to acquire the vast agricultural and mineral resources of the East which would be necessary for meeting the exigencies of a war of attrition.

Operation 'Barbarossa'

The *Barbarossa* plan for the attack on the Soviet Union provided for a *blitzkrieg* operation by armored units, supported by massed action from the air. It was expected that the Soviet forces would be annihilated in a series of "Cannae" type operations, preventing the retreat of forces into the vast Soviet expanses.

The objective of the first phase was Moscow. The final strategic objective was the line Archangel—Volga, which, when attained, was expected to eliminate the Soviet war potential.

While there is nothing, or very little, to take exception to in the logic of the plans worked out for the Polish and French campaigns, the strategic plan for the attack against the Soviet Union contained, within itself, the germs of certain failure for the following reasons:

1. An excessive undervaluation of the

strength and capacity for resistance of the Soviet military, political, and industrial organizations.

2. An erroneous appraisal of the possibilities of the blitz type of warfare in the limitless Soviet expanses which were almost completely lacking in modern communication routes.

3. A scarcity of time available for the operations—in view of the date of their beginning, the vastness of the country, the distances involved in reaching the strategic objectives, and the unknown effects of the severe Soviet winter.

In the subsequent conduct of operations, the German strategy revealed other deficiencies which were still more grave: shifting of direction of effort in the search for inconclusive tactical successes and losing from view the fundamental strategic objectives established in the initial plan.

An example of the former was when a German armored army was temporarily removed from the Central Army Group (whose principal objective was the capture of Moscow) in order to exploit the unanticipated success which was shaping itself in the south. This change brought about the annihilation of several Soviet armies in the Kiev area, but weakened the offensive drive in the center and produced a fatal delay in the investment of Moscow. Faced with the stiffened Soviet resistance resulting from the arrival of reserves from the Asiatic regions, and with a new and terrible foe in the form of the Soviet winter, the powerful German war machine, for the first time, was halted before Moscow. The German High Command attempted again in 1942 to solve the difficult problem of the Russian steppes, but without success. The strategic objective was still Moscow, which was to be enveloped by means of a long-range maneuver from the south. However, German strategy again permitted itself to be diverted from its tactical objective (Stalingrad) when the mirage of the

Caucasus oil fields caused the axis of main effort to shift to an eccentric position, leaving the flank weakly covered against the mass of the Soviet forces back of the Don and the Volga.

It was the favorable and decisive moment for the counteroffensive of the Soviet Army: the weak Don front yielded in the face of the massed attack of the Soviet armies in the Stalingrad area; Von Paulus' 22 divisions were encircled; and Kleist's army was barely able to escape across the Rostov bottleneck.

The Turning Point

This marked the decisive turning point of the war on the Eastern front. All possibilities of a *blitzkrieg* were ended and the myth of German invincibility definitely disappeared. The ensuing hard struggle in the East during the period from 1943 to 1945 was not able to change the outcome of the war—now comprised by failure of the initial strategic plans, by the continual strengthening of the Soviet Army, and by the constant and inexorable exhaustion of the German ground and air forces.

The war against the Soviet Union could not be decided at a *blitzkrieg* rate in 1941, even though the central aim of the German strategic plan had been precisely: "The destruction of the Soviet military might by a war of short duration."

The offensive operations of the summer and autumn of 1941 had given Germany a series of grandiose tactical successes, but the strategic errors (principally the delay in the beginning of the operations, and the changes in the direction of main effort, which delayed the operation against Moscow) had brought about the fatal and decisive point of the entire campaign.

According to one of the German commanders who fought on the Eastern front, the fundamental cause of the German defeat was the fact that "strategy was absent."

I stated at the beginning of this article

that the errors of the German strategy in World War II were so grave as to constitute one of the principal elements of the German defeat. In fact, in the general conduct of the war, German strategy had not progressed much further than the strategy of World War I.

A German Illusion

With the occupation of Norway and Denmark, control of the Atlantic coasts and most of Western Europe, friendship with Spain, the alliance with Italy, and the occupation of Greece, Germany had entertained the illusion of the inviolability of "Fortress Europe," and of the consequent possibilities of achieving her objectives in the East.

There was, in all this, an irreparable error in estimation of the new and modern military factor represented by strategic aviation. Although the growing importance of the air factor had not escaped the notice of the German military leaders, who were still anchored in the old concept of ground warfare, they had looked upon it as an indispensable, although complementary, element of ground warfare.

German Short-Sightedness

All of these factors reveal the German short-sightedness in the elaboration of their plans and the failure to acquire, beforehand, the means necessary for putting them into operation at the proper moment. These are the underlying reasons for the abandonment of the attempt at a landing on the English coasts and, still worse, their failure to attempt a rapid seizure of the Mediterranean area after the collapse of France. These were both fatal errors, because the British Isles became the base from which the great air offensive and decisive assault on "Fortress Europe" was launched, and the neglected African coasts played a similar role in the Mediterranean area.

In its plans, the German ground strat-

egy followed in the footsteps of that of Von Schlieffen, basing its action on:

1. The destruction of the enemy.
2. The avoidance of combat on two fronts (West and East).

However, in practice, as has already been stated, this strategy remained in the form of *intentions*, for it did not provide the means nor the firm will to eliminate the enemy who was most to be feared—Great Britain.

In its action, the German strategy revealed itself as:

1. In the West and in the Mediterranean theater, a strategy of limited objectives. Although the successes appeared grandiose, the failure to eliminate the British forces at Dunkerque, the abandonment of plans for a landing in England, and the failure to exploit the success on the North African coast made them inconclusive.

2. In the East, a wavering strategy which lost the objectives established in the initial plan. The Germans did not hesitate to modify their direction of effort on the basis of wherever success seemed easiest, aiming at the achievement of grandiose tactical successes without bearing in mind that in the vast Soviet hinterland time was the supreme element in achieving the strategic and decisive objective.

Co-ordination Was Absent

In the conduct of the war, one of the main causes of defeat is to be seen in the absolute lack of co-ordination of the over-all military action of the individual Axis powers. Instead of co-ordinating their actions, Germany and Japan undertook and conducted the war against the allies looking only to their own objectives. If Japan had not had too complacent an attitude of neutrality with respect to the Soviet Union, she could have held down a large number of the Siberian divisions which eventually were shifted to assist in the defense of Moscow, and which no doubt

saved the fate of the Soviet Union in the decisive battle of December 1941.

In her operational plans, Japan solely and strictly pursued the interests of her own *Lebensraum*, and never thought of acting along lines that could lead to a common strategy with her Axis partners.

Likewise, the war of the Rome-Berlin partners was a constant negation of a logical military policy of co-ordination and convergence of efforts.

Some people have tried to lay the blame for the obvious strategic errors on the absolutism, bellicose disposition, and fanaticism of Hitler. There is no doubt but that the presumption and the incompetency of the Nazi dictator played an important role in the errors committed, but the responsibility of the German High Command remains very fixed and definite. The German High Command prepared the strategic plans of war and directed their execution. That is why, in this article, I have always spoken of the strategy and errors of the German High Command and not of the strategy and errors of Hitler.

The question now arises as to whether Germany could have emerged victorious from World War II if she had avoided the

strategic errors of her leaders. From the purely military point of view the answer would be yes. However, modern wars, with their totalitarian physiognomy, long ago lost the characteristic of being exclusively a struggle between opposed armed forces. Political errors and deficiencies in the economic and industrial set-up have, to a certain degree, equally deleterious effects which make for military failures. Moreover, a government such as the Nazi government with the innumerable *faux pas* committed by it in the field of international policy, with the well-known weaknesses of its war potential, with its concentration camps, and with its merciless racial attitude would have had much difficulty in leading Germany to a truly victorious conclusion of the conflict.

However, on the other hand, the war (understood as a realization of the political aims of the nations undertaking it or involved in it) cannot be said to have been won by the allies. It is true that they crushed Germany and her Axis partners on the field of battle, but they definitely lost it as far as the concrete realization of their war aims was concerned. And here again, great errors of policy and strategy were the major causes.

While retaliatory power is one strong deterrent to a would-be aggressor, another powerful deterrent is defensive power. No enemy is likely to attempt an attack foredoomed to failure.

President Dwight D. Eisenhower

The Need for an Antishipping Air Force

Digested by the MILITARY REVIEW from an article by Wing Commander C. N. Foxley-Norris in "The Journal of the Royal United Service Institution" (Great Britain) November 1952.

PROPAGANDA is a great influence in our time. It is perhaps because propaganda has concentrated on the airplane as a fighter or a bomber that its role in antishipping warfare has lapsed into the background of public interest. Clearly, however, there must be some other and more valid reason why it has also fallen into a similar position in current service thinking. There is, at present, no operational antishipping force-in-being in the Royal Air Force, nor, perhaps more surprisingly, any training or development unit to keep the gospel of such operations alive.

Before discussing the present situation, it would be well to evaluate briefly the history and achievements of aircraft in operations against shipping.

During World War I, the airplane as a weapon of war did not progress far beyond the embryonic stage. As an antishipping weapon it was scarcely considered, which was understandable in view of its limitations of range and striking power as compared with the warship of its time. What little part aircraft played in maritime operations was largely confined to reconnaissance. Men of vision, however, were able to detect in the speed and flexibility of the airplane a potential contribution of the greatest value to the fight for supremacy at sea. Their moment of vindication came when General Mitchell justified their claims by bombing and sinking a battleship at sea off Newport News in 1921.

The lesson of the future was there for all to see, but unfortunately several considerations combined to blind British eyes. First, the fact of our undisputed naval superiority over any potential enemy blunted the point of that lesson. Granted, an aircraft could sink a warship; but, since the Royal Navy, being supreme at

sea, could do it just as effectively (some thought more so), why go to the expense of developing and producing a secondary weapon? Second, why trouble to evolve a specialized antishipping weapon when neither the strategy nor the economy of our potential enemies depended upon ships? Our potential enemy was Germany, or possibly the Soviet Union; both were land powers, continental nations, whose life blood flowed through land communications, not, like our own, through merchant fleets.

These arguments, the supremacy of our Navy and the lack of enemy targets, combined to produce in the services a general lack of interest toward antishipping operations. Both the Navy and the Royal Air Force experimented with the technique of torpedo dropping from aircraft, and a few squadrons of such aircraft were established, but their comparative priority was low and their operational potential limited.

The first few months of World War II did little to alter our traditional conceptions of the command of the sea. The Navy was able to provide convoys to our merchant shipping and bar the seas to the enemy's. The chief threat to both our naval and supply ships proved to be, as expected, the submarine. It was not until the spring of 1940 that the Norwegian campaign came to shatter our illusions. There is no place here to give the details of that campaign: it was the over-all strategic lesson that was revolutionary. The Germans demonstrated that an inferior naval power could operate ships over narrow seas with impunity against a vastly superior fleet, as long as command of the air was assured. In other words, in modern sea warfare, the airplane, not the warship, was now the decisive factor.

Further demonstrations of this principle were not hard to find. German air power virtually closed the English Channel to our major shipping; Italian and German air power for long periods did the same in the Mediterranean. The final proof came at Crete, where, in the face of no enemy surface warships whatsoever, but within range of a powerful German bombing force and beyond the cover of our own fighters, the Royal Navy suffered extremely heavy losses, including eight ships sunk and a death toll of more than 2,000 men. If the lesson needed further emphasis, this was provided by the Japanese, who, at Pearl Harbor and by the sinking of the *Repulse* and the *Prince of Wales*, proved once again that the aircraft was the master in modern war at sea. That the lesson was not lost on the Royal Navy was shown by the exploits at Taranto and against the *Bismarck*, where the fleet air arm showed themselves apt pupils of the new doctrine. These, however, were special occasions whose circumstances were unlikely to be repeated, and generally speaking our antishipping air force was still small and ineffective.

Thus our first major premise of the inter-war period, the supremacy of the Navy at sea, had been proved false. The second, that Germany had no requirement for, or dependence on, merchant shipping, now went the same way. Two factors contributed to this development. The first was the expansion of German territory until the armies of the *Reich* occupied the whole of Northern Europe. Garrisons were situated from the North Cape to the Pyrenees, and these garrisons had to be supplied and reinforced. Furthermore, the produce of the occupied territories had to be fed back to the industry and the people of Germany; of particular importance were iron ore and timber from Norway, but the manufactured goods and the raw materials of France and the Low Countries also had to be transported. The second factor was

our own, and later the American, strategic bomber offensive: among its main targets, whether by direct or area attack, was the enemy's vital internal communication system of roads, railways, and canals. By selecting this target, we helped to drive Germany's commercial and military transport on to the seas. Thus the problems arising from her own conquests and from our strategic bombing both contributed to the diversion of traffic to coastal shipping. By the middle of 1941, there was a heavy and continual flow of coastal convoys all around the coasts of Northern Europe, from Trondheim to Brest; and we were powerless to stop it, or even to interfere effectively with it.

Attempts were made to do so, but without success. Surface warships could not face the threat of the *Luftwaffe*. The coastal waters were mainly too shallow for direct submarine attacks: our aircraft mined them continually, but the effects of this mining were cumulative and not serious in the early stages of the war. *Hurricanes* of the Fighter Command were used against shipping, but their range was short and their armament inadequate. One Royal Air Force group, equipped with *Blenheims*, showed great gallantry in low-level bombing attacks, but results were disappointing and casualties very heavy. A new antishipping tactic—in default of dive-bombing for which we were not equipped—and a new weapon were needed. Fortunately both were at hand.

New Weapon and Tactic

The weapon was the rocket; the tactic was the antishipping strike wing. The basic principle of the rocket was that of a self-propelled shell. It consisted of a warhead, a shaft containing the cordite propellant, and aerodynamic guiding fins. Alternative warheads of 60 pounds of explosive or a 25-pound armor-piercing projectile were available, but experience showed the latter to be more effective,

because it provided greater accuracy and underwater travel. The advantages of this weapon were many; it could be fired at high speed and at ranges up to half a mile, reducing the danger of anti-aircraft fire; the load of a single aircraft, normally eight rockets, was the equivalent of a cruiser's broadside and quite sufficient to sink any merchantman or small warship; the damage could be inflicted below the water line of the target; and the noise of the rocket produced a valuable secondary effect in the demoralization and consequent inaccuracy of anti-aircraft crews.

The tactic developed to exploit this weapon was mass attack delivered at maximum speed and low level, so giving minimum warning to the defenses, even if they included radar. All aircraft came in together or in very quick succession, and the entire attack was over in a matter of seconds, giving no time for the defense to summon reinforcements. Strike wings to carry out such attacks were formed on the east coast of England, and were equipped with *Beaufighters*. Later these were reinforced with wings in the southwest and in Scotland, some of which were equipped with *Mosquitos*. Once the tactic had been proved sound it was extended to other theaters, with *Beaufighter* antishipping wings operating in the Mediterranean, the Aegean, and the Indian Ocean.

There is no space here to chronicle the full history of the campaign against the German coastal convoys. Suffice it to say that the antishipping wings met with immediate success, and, although the battle naturally swayed to and fro during the last 3 years of the war, that advantage was never lost. As soon as the seriousness of the threat became apparent, the German defenses—escort ships, flak, balloons, and fighters—were steadily strengthened, until at the end of the war a single large merchantman might be escorted by as many as six warships. We evolved counter-tactics, including long-range fighter escort

where necessary and the conversion of the first wave of the strike wing to a purely antiair role; and the interdiction of German coastal transport was progressively accomplished. The problems of night antishipping strikes were never solved with complete success, but air-sea mining proved a useful ancillary to the strike wings. By the end of the war, traffic had been reduced to an ineffective trickle. Testimony to this can be found in the Germans' failure to develop the planned northern bastion of their *Festung Europa* in Norway. The entire scheme depended on shipping, and the ships could not get through.

Antishipping Weapons

The weapons used in the past by aircraft against ships can be classified under the following headings: mines, guns, bombs, torpedoes, and rockets.

Mines

The mine differs basically from all other antishipping weapons in that it is not a missile aimed directly at an individual ship. It is laid in advance on sea routes likely to be traversed by ships, in the hope that it will be detonated by their passage. There are many means of detonating and activating sea mines, but the general principle remains the same; the mine is a trap rather than a missile.

The indirectness of its threat necessarily makes the mine to some extent a weapon of chance, and large numbers must be laid in exact patterns and in precise locations if they are to be effective. It follows that the airplane is not an ideal or economic means of minelaying. An individual aircraft cannot carry more than a small fraction of the number of mines carried by a minelaying cruiser or submarine; many aircraft are, therefore, needed to lay an extensive mine field, and the pattern is not likely to be of the required position. Moreover, minelaying aircraft, being large and vulnerable, will normally operate by night and may have difficulty in fixing

their exact position over the sea. The modern jet bomber operates most effectively at great heights, and economic and other factors will reduce the numbers available for all operations, particularly minelaying, which may be regarded as a secondary task. The air-sea mine itself can only operate efficiently in shallow water. Again, although a smaller consideration, air-sea mining is not a popular operation with aircrews; hazards are considerable, but no results are observed, and there is, therefore, none of the excitement and morale-raising satisfaction that can be derived from more direct attacks.

Thus the aircraft's sole qualification as a minelayer lies in its power to penetrate to some places otherwise inaccessible; for example, in the mining of the Danube: in other respects it is not, and will become less, suitable for the work, and its future use is likely to be only ancillary to that of minelaying warships.

Guns

The defects of the gun as an airborne antishipping weapon can be summarized very simply; the hole made by its projectile is not large enough and is above the water line. Ships, except the smallest, can, therefore, normally only be damaged, not sunk by it. The heaviest caliber gun in general use in Royal Air Force aircraft during the last war was the 20-millimeter. Attacks on shipping with guns of this caliber were very effective in the antiair role and extensive damage was done to superstructures, but no large merchantman or warship could be destroyed except by a lucky hit in a magazine or fuel tank. A 6-pounder gun was experimentally fitted in the *Mosquito*, designed for use against surfaced submarines, and a similar gun in the *Mitchell* bomber, but they met with little success. It seems probable that limitations of size and weight will always preclude the development of an effective airborne antishipping gun.

Bombs

The defect of the bomb, in its orthodox form, as an antishipping weapon is that it is dropped, not fired; that is, its fall is uncontrolled and the aircraft must pass over, or nearly over, the ship under attack. The ship offers a small and evasive target to high-altitude bombing; the small lateral size of the target, its maneuverability, the time of fall of the bomb, and the need for clear weather make high-altitude bombing of ships extremely difficult.

Faced with these difficulties, a bomber must descend to low level to make an accurate attack on a ship. There are, however, two great drawbacks to this tactic; the vulnerability of the bomber and the unsuitability of its weapon. In a low-level bombing attack the bomber must approach and fly over the ship and its escorts. Furthermore, the performance of the bomb, when dropped from low level, is unpredictable; if it hits the deck of the ship it will more often than not bounce off it, if it hits the side of the ship (a very small target in a deep-laden ship) it will make a large hole, but above the water line. Attempts were made to obtain such hits by "skip-bombing" (dropping the bomb short of the ship in the hope that it would bounce off the surface of the water), but anyone who has played "ducks and drakes" in rough water will know how haphazard this must be in the open sea, even to the extent that the bomb's bounce might endanger the bombing aircraft.

Thus, the free falling bomb is never an ideal antishipping weapon. Of the guided bomb more will be said later in this article.

Torpedoes

The torpedo has two of the basic requirements of an antishipping weapon; it makes a large hole in the ship and that hole is below the water line. Unfortunately, it also has definite limitations as an airborne weapon. The aircraft dropping it

must fly straight, low, and very slowly toward the target and over the escort screen. It is thus extremely vulnerable to all forms of defense. Where escorts are absent or surprise can be achieved, torpedo-carrying aircraft can do great damage. However, where strong fighter or antiaircraft defenses exist, the type of approach required produces prohibitive casualties. Even where the aircraft miraculously survives, the violence of the defenses and the maneuvering of the target may put the pilot off the extremely accurate aim required. Thus, in circumstances that can be described as normal in antishipping operations (against heavy flak defenses and probably fighters), the torpedo has serious limitations as an aerial antishipping weapon. These limitations may, however, be eliminated by later developments of the weapon; for example, circling or pattern-running torpedoes with homing devices.

Rockets

The advantages of the rocket have already been mentioned. As used in World War II, its qualities as an antishipping weapon may be summarized as follows: it carried a heavy punch, one aircraft load being enough to sink any vessel but the largest warships; it had, with the armor-piercing head, predictable underwater travel and damage could thus be inflicted on a ship's vital point; it could be fired with great accuracy from ranges up to half a mile; the firing aircraft could be flown at a top speed in a shallow dive, allowing for full evasive action until shortly before, and immediately after, discharge, and thus reducing the vulnerability to flak; and the results were spectacular and the noise terrifying, thus raising the morale of the aircrew and lowering that of the ships' crews. It was, in fact, almost the ideal weapon.

However, advances in antiaircraft technique, such as the proximity fuze, will

probably in the future render even a high-speed approach directly toward the target very hazardous, and the comparatively short firing ranges used in the past may well have to be increased.

Weapons of the Future

In discussing weapons of the future, thoughts automatically turn to the atom bomb, on the assumption that its increased lethal area will neutralize any drawbacks arising from inaccuracy. Experiments have shown, however, that it is only an economical weapon of sea warfare if aimed at large and concentrated shipping targets, such as would be found in harbors or estuaries. In the open sea, dispersion would be an adequate defense against atom bombing, or at least render it prohibitively wasteful.

Other new weapons may be produced or may already exist in secret; of those we know, the most effective has been shown to be the rocket. If a longer-range rocket could be produced, preferably combining explosive and armor-piercing qualities for underwater impact, it would appear to offer the best prospects for future antishipping operations. Ideally, too, the aircraft should not have to point directly toward the target; it should be possible to fire the rocket while the aircraft is flying parallel to the ship's or convoy's course, outside the range of antiaircraft fire, and to steer the rocket toward the target. Experiments in this direction were made in the last war, but they failed owing to inaccuracy in the amount of heading-deflection produced aerodynamically. With modern controls and homing methods, such problems should prove soluble.

This would bring us back toward the German idea of the guided antishipping bomb; and, indeed, the guided rocket-propelled missile may well provide the eventual answer. The drawbacks of the German bomb were its size and complication, and, therefore, the size of the launching

aircraft, and the length of time that the latter had to spend in the combat area, again demanding complete air superiority for success. If the launching aircraft could be distracted or destroyed during the flight of the bomb, the latter became ineffective. The aircraft firing a guided rocket could probably be much faster and smaller, and the time of flight of the missile much shorter. Thus the tactic of the "sneak" raid with a knock-out punch could be retained, and developed so as to keep casualties to a minimum.

Antishipping Aircraft

Experience has shown that the ideal antishipping aircraft must carry a sufficient load to destroy its target; must have long range at low level; must be able to navigate accurately over the sea (this probably calls for at least a 2-man crew); must be fast and maneuverable at low level so as to evade static defenses and, if necessary, intercepting fighters; and must, if possible, be sufficiently robust to absorb punishment, and have good sea-ditching qualities.

In the last war the nearest approach to this ideal was the *Mosquito*, but no shipping strike aircraft proved capable of dealing effectively with single-engine fighters, and the *Mosquito's* ditching qualities were not good. At least, however, it produced the best compromise to the diverse requirements. It has been suggested that the two-man crew navigational requirement puts an unnecessary handicap on the selection of strike aircraft, and that the problem could be solved by only the leader's aircraft carrying a navigator; for example, a *Mosquito* to lead a force of *Mustangs*, or a *Meteor 7* to lead a force of *Meteor 8s*. The objection is that all of one's eggs are thus put in one basket: if the leader has mechanical or other trouble on the way to the target, the whole strike may be neutralized by the failure of one aircraft.

Future requirements will remain much the same as those of the past, but the advent of jet propulsion sets new problems. In jet-propelled flight, low altitude conflicts directly with range; it is virtually impossible to produce a small jet-propelled airplane to fly long distances at low level. Moreover, the difficulty cannot be overcome by flying to the target area at high altitude, since this would make target location very difficult and would also give such long radar warning of approach as virtually to ensure fighter interception before the target area could be reached. On the other hand, the problem could not be solved satisfactorily by retaining propeller-driven aircraft, because, if intercepted, they would be hopelessly outclassed by jet-propelled fighters. The answer may well lie in a propeller-driven aircraft, with jet or rocket emergency power. However, at the present time, no solution has apparently been produced.

Need for an Antishipping Force

It is to be hoped that the foregoing account of the accomplishments and potentialities of aircraft in the antishipping role will leave no one unconvinced of their value. Indeed, although the Royal Air Force has at present no antishipping force, this apparently cannot be attributed to any ruling at high level that there is no need for such a force. There seems to be complete unanimity as to its ultimate desirability, and this view is strongly backed by authoritative opinion in the Royal Navy, which readily admits its inability to interfere drastically with coastal shipping around an enemy-occupied Europe.

No one then denies our need for an antishipping force, yet we do not possess one. The answer given to this apparent anomaly is that of comparative priority; that is, we do need such a force, but not as badly as we need defensive fighters or

strategic bombers or a tactical air force. In these days of stringent economy, we must cut our coat according to our cloth; we cannot have every weapon we need; we must do without those for which the need is less urgent and less vital. The official view is that antishipping forces come under the latter heading, and that, therefore, we must do without them, at any rate for the present.

It is suggested that there is a fallacy in this reasoning. Clearly the facts of economic shortage are indisputable, but can the order of priorities produced be defended? Is it reasonable to postulate the need for a strategic bomber force but deny the need for the complementary antishipping force?

To do so would appear to invite a repetition of the events of the last war. Germany's conquests, and our bombing of her communications, drove her to resort to coastal shipping: for a long time we could do nothing to stop the latter, and the over-all effect of our attacks on land communication was thus partially neutralized. The same situation would surely face us in another war. The Soviet Union, a great land power, might overrun and occupy a large part of Europe. America and Great Britain, strong air powers, would concentrate their bombers, *inter alia*, on land communication targets to paralyze the Soviet economic system and slow their advance, pending our counter-attack. If such bombing were effective,

the Soviet Union would be driven, just as Germany was, to depend more and more on sea communications for strategic and economic purposes. Moreover, armed as we are, we could do little or nothing to interrupt them.

We would be in the position of a boxer who concentrates all his training and energy on blocking his opponent's left lead, and leaves himself wide open to his right cross. However, worse yet, we would be a boxer who had exactly the same trouble with his last opponent's right cross and should have learned his lesson.

Perhaps, economically, we cannot now afford an antishipping force-in-being; but surely, equally, we cannot afford to let the doctrine and technique of aerial antishipping warfare perish. If any lesson can be learned from the past, it is that the specialized techniques of air warfare, such as antishipping operations, cannot be learned overnight or hastily improvised. A study of the Bomber Command's prolonged teething troubles with night operations clearly points that moral. If there cannot be a force-in-being, at least there is a strong case for a cadre force, based on practical and theoretical experience; a force which can apply the technical advances of today to the practical lessons of yesterday, and which, in time of crisis, could provide a nucleus around which could be swiftly organized the effective antishipping forces that the country and the Royal Air Force undoubtedly will need in another war.

The Air Force's ability to inflict swift and terrible counterblows and its ability to reduce an enemy's capacity for continuing any war he might start against us must be maintained at all costs.

General Nathan F. Twining

The Dilemma of the West

Digested by the **MILITARY REVIEW** from an article by Captain A. M. N. Rodulfo in the "Australian Army Journal" January 1953.

The area generally known as Southeast Asia, that is, Burma, Thailand, Indochina, Malaya, and the East Indies, has played a great part in the history of European expansion. Indeed, the lure of the Indies and, by extension, Cathay prompted the voyages of Columbus and Vasco da Gama. It may be said, therefore, that the fate of Southeast Asia is peculiarly bound to that of Western Europe.

The first Europeans arrived to find a world of warring petty states. Because in many areas the situation was one of near anarchy, conservative and cautious traders like the Dutch were compelled, in self-defense, to annex and subdue the petty states around their trading factories. Thus Southeast Asia became the classic area of commercial imperialism. There had been little attempt at, or possibility of, assimilation between White and Brown such as took place in Latin America, but the impact of European ideas has been none the less shattering in its effects on the old civilizations of the area.

Impact of European Civilization

The first impact of European civilization took place at a time when the ancient Hindu culture emanating from India was giving way to that of China. In this event the West triumphed, but not decisively. As a result, the inhabitants of Southeast Asia are left with the task of reconciling the three very different cultures, and it is not surprising, therefore, that confusion reigns both in the world of ideas and in the world of politics.

The sudden withdrawal of European tutelage after the war has left Southeast Asia only outwardly prepared to stand on its own. In addition to the mental confusion outlined above, the peoples of

this area find themselves at the mercy of forces outside their control and it is largely these forces that will be discussed in this article.

Economic Factors

The economic attraction of the Indies for Europeans still exists. The Dutch economy is almost entirely linked with that of Indonesia, so that Holland plays an important role in the rubber, tin, tea, and sugar trade of the world. The dollar balances of the British Commonwealth are largely dependent on the earnings of Malayan rubber and tin. France relies greatly on Indochina's rubber production and the control of Burmese wolfram has some strategic importance for the West. The loss of Iranian oil supply is largely offset in Australia by the rapid expansion of the Brunei oil field. The richest oil fields of the Far East are in Indonesia, which also possesses considerable refining capacity.

The last war showed that the loss of the strategic materials of Southeast Asia can be replaced at great cost when necessary. However, this substitution can only be of a temporary nature, limited to the duration of a war.

Burma, Thailand, and Indochina are unique in Asia in that they are underpopulated and are, consequently, food surplus areas. Their importance in this respect places them among the key areas of the world because these three countries are the only significant exporters of rice.

Communist control of these countries would give Peking and Moscow a powerful weapon with which to threaten India, Indonesia, Malaya, the Philippines, and Japan.

The Oriental cannot readily switch from

a rice diet to a wheat diet without experiencing physical discomfort. Age-old custom and religious aversion to meat make it even more difficult to find rice substitutes. During the Bengal famine of 1942, peasants were known to prefer starvation rather than accept unaccustomed foods. Even if the peoples of India, Japan, and Indonesia should turn to a wheat diet, it is doubtful whether the West could find the shipping necessary to move several million tons of wheat from distant production centers—nor could the wheat be delivered at a cost within the reach of the poverty-stricken peoples of these lands.

Racial Factors

The racial composition of Southeast Asia is naturally intricate as a result of migratory waves moving southward from the Tibetan and Yunnan highlands. In historical times this movement has taken the form of Chinese penetration.

Chinese colonies have been in existence for centuries in some areas; in others, as in Malaya, Chinese immigration has followed as a corollary to European commercial expansion. In fact, European commercial expansion would have been almost impossible without the establishment of a Chinese small trading class since most Southeast Asian peoples show little aptitude for modern commerce.

In Malaya, the Chinese will soon form the majority of the population, while in all other countries they are a very influential minority.

Except in Burma, the rice trade is almost entirely in Chinese hands. All Chinese must be regarded as potential Communists.

Political Factors

The principal political factors to be remembered are the recent emancipation of large populations from colonial rule, and a first-hand experience of modern war. The first has left a legacy of anti-Western bit-

terness among educated classes which the Japanese assiduously fostered during the war. The second has been incalculable in its effects upon a simple peasantry which had previously lived a self-contained existence only remotely affected by Western civilization. It has contributed largely to a breakdown of the old village loyalties and religious influences, especially in Burma and Indochina.

Until now, no indigenous philosophy or way of life has been evolved which can obviate the present need to choose between two alien and European systems—democracy and communism, neither of which is fully understood. It is this spiritual vacuum which is largely responsible for the present unreal desire for neutrality in the threatening world conflict. Sooner or later a choice must be made.

The growth of nationalism in Southeast Asia, itself the product of Western education and thought, was of necessity anti-European and anti-imperialist in its expression. The Japanese war prevented a gradual and relatively peaceful transfer of power as was the case in India. The failure of the West to prevent a Japanese invasion gave the Communists, hitherto unimportant, an opportunity to pose as true patriots and nationalists. The one exception was in Thailand, which had managed to preserve her independence and cultural heritage by playing on the rivalries of France and Britain. The Communists were greatly aided in their pose as nationalists by the prewar colonial policies of France and Holland which discouraged nationalist activities. As a result, many of the more energetic nationalists were driven into the Communist camp since they could see no other means of destroying colonial rule in their countries.

Any move on the part of the colonial powers to promote self-government depended upon the co-operation of land owners. It was not possible, therefore, to carry out extensive land reforms without

alienating the very people whose help was necessary for the modern development of these countries. The colonial powers have consequently come to be identified with the perpetuation of a social system based upon the inequality of wealth. It is difficult, at this late date, to convince the Asiatic that Western democracy stands for freedom and equality.

As long as the ideological struggle is confined to political platforms and the United Nations, the advantages are all with the Communists. It seems that only daily contact with the realities of Communist practice can convince the Oriental that our way of life may be preferable in default of a native ideology suitable to modern conditions. Fortunately for the West, the Communists are already in armed revolt in three countries. Providing the present governments of Burma and Vietnam can survive the rebellions, there is a good chance that popular revulsion may turn the people away from the embraces of Mao Tse-tung.

Finally, the West has a considerable advantage in two factors. First, the dislike and fear of the Chinese minorities which exist in all Southeast Asian countries—except possibly Burma, where Indians form the principal minority. Second, the three mainland states are food surplus areas and consequently more readily contented than densely populated islands like Java. This is particularly the case in Thailand, where the high price of rice has brought with it an unwonted prosperity.

The strategic importance of the Southeast Asian countries is evident. They are not only important producers of raw materials and of rice, but also cover the approaches to India and Australia.

Burma, if Communist controlled, would

give China and the Soviet Union access to the Indian Ocean and practicable physical contact with India, the Government of which has shown itself to be highly sensitive to frontier problems. The Assam-Burma border has never been precisely defined and China has always claimed the northern Kachin areas of Burma.

The only practicable land route to Thailand and Malaya from China runs through the Tonkin Delta. It is doubtful whether any natural defense line could be found between Tonkin and the Kra Isthmus. The French war in Tonkin against the Communist Vietminh rebels is, therefore, not a purely French affair. It is of vital concern to the British in Singapore, to the United States, and to Australia.

Conclusions

Free access to the rice surpluses of Burma, Thailand, and Indochina is essential if Japan is to be won over to the West, or at least kept neutral, and India's position in the Commonwealth safeguarded.

The Tonkin Delta is the gateway to Southeast Asia and as such must remain in friendly hands if Singapore is to play its part as a major naval base.

The Western defenders of Southeast Asia must gain the co-operation of the native populations for which a readily understood and attractive alternative to communism must be found.

The West is faced with the dilemma of continuing its political withdrawal from Southeast Asia in order to convince Asia of our sincerity, thereby weakening our defenses, and of maintaining military strength in Indochina as a defense against the threat from Communist China. We are in fact faced with a set of conditions bearing a striking resemblance to the situation in Korea.

The Impact of the American Civil War On British Military Training

Digested by the MILITARY REVIEW from an article by Professor R. A. Preston
in "The Army Quarterly" (Great Britain) January 1953.

THE American Civil War was the prototype of modern warfare. Tactically, it showed that the development of rifled small-arms and rifled artillery had ended the traditional "shoulder-to-shoulder" infantry attack and necessitated "open order." It also revealed that cavalry relying on shock and *armes blanches* were no longer necessarily superior to horsemen who used missile weapons, and that, therefore, mounted riflemen had a new role in war. Strategically, the great areas over which the campaigns were fought were a foretaste of the wars of the twentieth century; and the Americans showed how railways could be used for war purposes. In numbers, the armies of both sides, although largely volunteer, were in effect a reversion to the principle of the nation-in-arms, the supremacy of which had been amply demonstrated by Napoleon but ignored by military leaders since his time. In the sphere of military organization, the Americans taught the way in which these great armies of civilian-soldiers could be trained, equipped, and administered.

The European Viewpoint

However, contemporary foreign military leaders were not greatly impressed. To European soldiers like Von Moltke, the Civil War was an amateur affair in which large armed rabbles chased each other around a vast country. Europeans believed that their own armies of long-term professionals were superior to the American volunteers; and they also feared that any slackening of discipline and rigidity in their battle formations on the American model would be dangerous and unwise.

When the Civil War was followed closely by several great European conflicts (which incidentally retaught many of the same lessons at great cost in lives), continental Europeans found ample material for the study of tactics and strategy closer at hand. Therefore, they felt no need to emphasize the study of the Civil War.

However, the lessons of the Civil War had not been completely missed in Europe. The Russian General Skobelev was a close student of the American Civil War and used its tactics in his attack on the Turkish redoubts at Plevna in 1877. He was one of the first European generals to develop a tactical offensive in modern times under the new conditions. Even Von Moltke, who was so contemptuous about the Civil War, seems to have learned from it that the fire power of troops on the defensive had increased to such an extent that it was necessary to adopt new methods. His answer was to combine a strategic offensive with a tactical defensive; and it was with this combination that he defeated the French in 1871.

Contemporary English soldiers were at first inclined, like their European brothers-in-arms, to belittle the amateur's war in America, but in the course of time they were to change their tune. A generation later, under the influence of Colonel G. F. R. Henderson, the British Army had begun to train its officers by the study of the Peninsular and Shenandoah campaigns of 1862. Until World War I, the Civil War was the historical training ground of the British; and Colonel Henderson's *Stonewall Jackson and the American Civil War* was the British officer's bible.

Early Interest

Colonel Henderson was not, however, the first British soldier to emphasize the necessity of studying the American Civil War. Early in the course of the war one of Henderson's predecessors at Sandhurst, Colonel C. C. Chesney, who had recently been responsible for putting the teaching of military history on a sound footing, boldly introduced as material for study at the Royal Military College the study of American campaigns which had barely ended. A little later, in 1863, he published *A Military View of Recent Campaigns in Virginia and Maryland* in which he not only told the story of the war but also attempted a judgment about the fighting. Chesney's writings did not, however, penetrate deeply into, or analyze, the changes in warfare which were being demonstrated even as he wrote. His studies were based mainly on current articles in English, French, German, and American periodicals. Even though his book was corrected by a friend who had been present at the scene of battle as an impartial observer, Colonel Chesney did not perceive the real significance of the operations in the history of warfare. He was too far away from the war in terms of geography and too close to it in terms of history to be able to analyze it properly. Nevertheless, his influence was important in focusing British attention on the war. Chesney's lectures, the two editions of his book on the campaigns of 1862, together with his later book of essays on the American leaders which he published in 1874, introduced the study of the American Civil War into the British Army. When he was transferred from the cadet college at Sandhurst to the Staff College, his sphere of influence was greatly increased.

Following the lead given by Colonel Chesney, another book drew attention to the lessons of the American Civil War in 1867 when Sir Henry Havelock published *Three Main Military Questions of the Day*;

but Chesney himself appears to have believed that the emphasis on the Civil War in his teaching had proved futile. At any rate, in 1874, in the preface to his *Essays in Modern Military Biography*, he wrote that the "military excellence displayed [in the American Civil War] had been unduly depreciated by comparison with late events on the Continent." In fact, however, from 1870 onward British field exercises had already begun to bear a strong resemblance to the tactics used by the Americans. Colonel Henderson himself noticed this similarity and, many years later, wrote: "It is possible that the lessons of the war had not been altogether lost in England, and that they exerted an influence of which English soldiers were scarcely conscious."

'Subconscious' Influence

The explanation of this "subconscious" influence is not hard to discover. While all the big European powers had sent their observers to the scene of the strife, the British were obviously able to send observers much more freely than continental states. Not merely did they have the advantage of speaking the same language as the Americans, but they also had, close at hand in Canada, garrison troops whose officers eagerly sought opportunities to see the war. There are several references in narratives of the war to the presence of visiting British officers. For instance, a Captain Phillips of the Grenadier Guards stationed in Canada visited the Southern armies during a leave of absence in 1862; and a war correspondent of *The London Times* mentioned four British officers who came to see the war. However, the most distinguished visitor from the imperial forces in Canada was undoubtedly Colonel Garnet Wolseley, who later became a field marshal and Commander in Chief of the British Army and was to be one of its foremost advocates of reform and of the adoption of modern training methods.

Another British officer who contrived to visit the American Civil War was Captain Edward Osborne Hewett, commandant of the Royal Engineers in the military area west of Toronto. No official report of Captain Hewett's visit can be found in the archives in Canada or the United Kingdom, but a long private letter to his mother tells the story of his journey.

In 1862, when Hewett and Wolseley went to the United States from Canada, British soldiers in Canada were fully conscious of the fact that they lacked information about Southern plans, operations, and military methods. Hence, both Wolseley and Hewett made a point of visiting the Confederate armies as well as the more accessible armies of the North. It seems likely also that the British were eager to obtain information about American medical practices, for Wolseley and Hewett were accompanied by army doctors. Wolseley traveled with Sir William Muir, the chief medical officer of Canada; Hewett's companion was a Dr. Jameson.

Technically, the British military observers who came from Canada were "on leave of absence." Wolseley obtained permission for his visit to the United States from his commanding general but did not present the details of his intention to visit the Confederacy. Hewett obtained a leave of 2 months and that coincides roughly with the length of his tour in the United States as described in a letter to his mother; however, in an official statement of his services it is said that he was 5 months in the United States. This may indicate that part of the time, at any rate, he was considered to be on duty. In his account of his visit to the armies, Hewett made reference to the contemporary practice of sending observers to foreign wars; however, he always insisted to people he met that he himself was on leave and was undertaking an arduous trip in a spirit of adventure. Probably this unofficial status enabled him and others who went

on similar errands to go and come more freely. British officers, even when not officially accredited as military observers, were given passes to visit the war zones. When contrasted with modern practices, laxity of American security precautions was remarkable.

Main Interests of Observers

Most British observers, both civil and military, appear to have been mainly interested in such topical problems as the recognition of the South, the blockade, the slavery issue, and the relative merits of Northern and Southern soldiers; but many of the soldiers must also have been conscious of the necessity for observing the war in America in order to study the effect of the newest weapons on tactics and strategy. At any rate, one Canadian militia officer said that he "watched it [the war] with great interest, trying to learn as many lessons as possible from the practical working of new conditions, caused by rifled firearms, revolvers, telegraphs, railways, etc.;" and he also discussed military matters with many Southern refugees, including Jefferson Davis, "thereby," as he wrote afterward, "gathering a great amount of knowledge of the practical working of the military art under modern conditions."

However, the full significance of the impact of new weapons on war was not seen clearly by many of the observers. If a popular article which Wolseley wrote for *Blackwood's Magazine* is typical of his reactions, he does not appear to have been at all aware that there was a revolution in progress. Moreover, he was so blinded by his Southern prejudices (which most other British soldiers shared) that his judgments on military prospects were completely distorted. General J. F. C. Fuller asserts that even as late as 1893 Lord Wolseley had not grasped the full significance of the changes introduced by the war.

Hewett was a Southern sympathizer also, but he concealed his feelings more effectively. The letter to his mother deals very largely with military matters, and gives some indication of his views. Hewett was less concerned with the vital problems over which the war was fought, with the effectiveness of the blockade, with the possibility of foreign intervention, with recognition by the powers, and even with the moral issues involved in the institution of slavery than was Wolseley and other British observers. He was interested in smaller affairs, the behavior of soldiers under fire, the condition of the countryside, the temperament and ability of the generals, and the aspect of great encampments and armies. His letter is, therefore, much more valuable than Wolseley's article as an indication of what a regular army officer learned from his observations of the war.

Hewett's letter seems to suggest that he, too, was not fully aware of the revolution in warfare which precision weapons had brought. For instance, he was severely critical of the incapacity of Northern cavalry and he gave a personal demonstration of the way in which cavalry should ride against infantry without, apparently, realizing that if the infantry had been using their rifles he would have fared ill. On the other hand, he was greatly impressed by the morale of American troops, by the size of American armies, and even more by the development and success of administrative methods. He was aware, too, of the necessity of developing methods for the tactical handling of troops in the new conditions of warfare. Thus, although he did not apparently realize that there had been a tactical revolution in warfare, he noticed the details of the changes which were taking place; and the information which he and other British observers thus stored away in their minds must have had a great influence on the development of training methods in the British Army.

This fact is emphasized by a Canadian statesman, Sir Richard Cartwright. When discussing the relation of Canada's defense problems to Confederation, Cartwright wrote:

But during the years from 1861 to 1870 I saw a great many British officers of all ranks, many of whom have since risen to the highest military positions. Most of these men, though comparatively young, were veterans in the best and truest sense of the word, having served through several very arduous campaigns in the Crimea and in the Indian Mutiny, and they thoroughly understood what they were talking about. . . . I think at first, in 1861, they had been disposed to underrate the military power of the United States and to look on their armies as little better than armed mobs. But after that period many of them contrived to pay a visit or two to the seat of war, and long before the struggle was over they had come to understand the tremendous energy and resources of the Northern states, and to entertain a most wholesome respect for the fighting qualities of both parties in the Civil War. Some had been eyewitnesses of several of the severest conflicts which took place, and these I found were all most impressed with the skill shown in handling and providing for the huge masses of men who were latterly put in the field, and with the intelligence and great adaptability of the average United States soldier and the excellence of their commissariat arrangements.

There can be no doubt that these British observers also brought back with them knowledge of tactical developments which, even though not always fully understood, was to have, as the officers rose to high places in the British Army, a profound influence on its training methods.

An officer who was more conscious of the tactical revolution in progress was Captain George T. Denison, a Toronto barrister and the commander of the Governor General's Bodyguard. Influenced by the Civil War, Denison produced a book on *Modern Cavalry* in 1868 in which he argued the primacy of cavalry armed with rifles. He repeated this thesis in his essay on the "History of Cavalry" which he submitted and won a prize given by the Czar of Russia.

The fate of the ideas which Denison had

developed by studying the Civil War gives some indication why some of the war's lessons were not immediately accepted. Denison had proposed in his book that the cavalryman's saber should be attached to his saddle; however, the British scorned to adopt an idea put forward by a provincial soldier. However, the Russians adopted this along with other suggestions of Denison's; and other continental European armies soon followed their lead. The British adopted the innovations from continental practice; and Denison's own militia unit was issued saddles with sabers attached 29 years after he had first advocated them.

The same fate met the other proposals regarding cavalry which Denison had advanced as a result of the study of the Civil War. He had recommended jackboots, nonpivot drill, squadron organization, the mounted rifle principle of tactics, attaching the pistol to the man, and the pushing forward of cavalry units well ahead of the main body of the army. The British Army only adopted the jackboots. Not until the South African War did the British come to accept the idea that the function of cavalry had changed; and then they only learned it as a result of bitter experience in conflict with the Boers who were all mounted riflemen. Conservatism, and a dislike of theory advanced by nonprofessional soldiers, had barred the way to Denison's ideas which were learned quickly enough when taught by experience.

Infantry Training

As has been shown above, American tactical methods had begun to influence British infantry training as early as 1870, before the time when the Franco-Prussian War began to teach similar lessons. This influence was undoubtedly the result of the personal experiences of British officers who had visited the war. However, in 1888, after a long period of continual

peace, the lessons were forgotten and the innovations in training methods were dropped. In that year British field exercises emphasized that the open-order line of skirmishers of the new tactics must be followed up closely by a bayonet charge of the old style. The British thus returned to their traditional emphasis on shock and deliberately repudiated the Prussian idea of relying on fire power.

A year later, Colonel Henderson began his great career as a military teacher. He published *The Campaign of Fredericksburg* anonymously in 1889 and in the same year was appointed an instructor in tactics, military law, and administration at the Royal Military College at Sandhurst. From 1892-99 he was Professor of Military Art and History at the Staff College. Between 1890 and 1898 he wrote his great book, *Stonewall Jackson and the American Civil War*.

As a result of Henderson's influence, the study of the American Civil War soon came to occupy a pre-eminent place in the study of military history by British soldiers. Henderson argues that, since the Americans had a "kindred army, organized on the same voluntary system, making the same use of irregular levies possessing the same characteristics, conducting operations under the same conditions of rough wooded country, and continually fighting against space" as the British in their colonial wars, his fellow countrymen should study the American Civil War at least as much as European conflicts.

Colonel Henderson, himself, however, had failed to appreciate entirely the extent of the revolution in tactics which the Civil War had first revealed. Thus, while he had noticed that the Prussians in the late 1860's had adopted an open order similar to that of the Americans but without deliberately copying their tactical methods, and while he realized that this was a natural response to conditions brought on by the new precision weapons,

he insisted that the Americans were in fact using tactics which had developed from the traditional "line" of the British Army and he criticized the Prussians for relying on fire power. He believed that American experience had taught the necessity of following up the skirmishers with a close-order line of bayonets. His opinion in this respect must be weighed against that of Colonel E. M. Lloyd who, in his *History of Infantry*, asserted that the Americans made so little use of the bayonet that the soldiers often threw them away!

Thus, Henderson approved the adoption by the British in 1888 of the practice of following up the skirmishers by a close-order bayonet charge of the old style because it seemed to him to suit British and American *élan* and because it appeared to grow from the two traditional tactical formations used by the British under Wellington and under Sir John Moore. Even when the South African War appeared to cast doubt on the value of the bayonet, the editor of Henderson's posthumous essays found consolation in the fact that in the war in China which was being carried on at the same time the bayonet was still proving effective.

Furthermore, a recent student of the history of warfare, Captain Liddell Hart, has suggested that Colonel Henderson's interpretation of the strategic lessons of the American Civil War was also misleading and unfortunate. Liddell Hart declares that because the officers of the British Army from 1890 to 1914 were trained on the Peninsular and Shenandoah cam-

paigns rather than on the Civil War as a whole, they failed to appreciate the importance of the operations in the West. As a result of their training, he says, British military leaders committed themselves to the great frontal actions in World War I and placed far too little weight on the strategic flank and rear attacks in Southeast Europe. His thesis, that a wide enveloping movement would have been a possible alternative in 1914-18 to the stalemate on the Western front, is not universally accepted, but it is reasonable to believe with him that, because the British Army had been trained on the Eastern campaign of the American Civil War and had neglected the Western ones, British soldiers became committed the more readily to the Western front.

Influence of the War

Thus, it can be seen that the American Civil War had an important early influence on British Military training methods long before Colonel Henderson, by his brilliant teaching, made the study of some of its campaigns a fundamental part of the British soldier's knowledge of military history. That influence, which undoubtedly grew out of the experiences of British soldiers who had visited the war zones, had waned by the time Colonel Henderson began his teaching; and there is some reason to believe that the tactical and strategic lessons which Colonel Henderson and his successors drew from the American Civil War were less correct than those which British military observers themselves had unconsciously observed and applied.

Air Power in War

Digested by the MILITARY REVIEW from an article by Lieutenant Colonel N. Humayune in the "Military Digest" (Pakistan) December 1952.

THE great contribution made by air power in the last war and the future possible advances in aeronautics are giving rise to a feeling that, in the future, wars will be won through the employment of air power alone. In simpler words, it is implied that strategic bombing alone will achieve the results which up until now have been a joint responsibility of the three services. Since the science of flying is still far from being perfected, as also are the methods of conducting warfare in the air, it appears premature to draw a conclusion of this nature at this stage. In order, therefore, that our methods of conducting warfare in the future are not influenced by conclusions which are not adequately supported by experience, we must await the production of incontestable evidence which will go to prove that the use of air power alone can achieve the object of waging war.

However, by recounting experiences of the past, it is possible to predict with reasonable accuracy whether the implied role of air power will ever be successful. This article will attempt to review our war experiences and investigate how much truth there is in the statement that wars in the future will be won by air power alone and that the days of the navy and army are numbered.

It would be well now to define the object of war, because the application of future technique will necessarily be toward the achievement of this object, which, being constant, provides a firm basis for the building up of arguments.

War has been defined as a continuation of diplomacy, having as its object the enforcement of national policy in the shortest possible time and at the most economical cost.

In order to achieve the object of war, as just stated, through the employment of air power alone it will be necessary for the air forces to:

1. Command the air.
2. Destroy the enemy's war potential.
3. Destroy the enemy's will to fight.
4. Be provided with such facilities as are essential to successful air operations.
5. Have forces on the ground to exploit the successes achieved.

Let us now consider the foregoing tasks and draw whatever conclusions we can.

Command of the Air

Command of the air involves the engagement and destruction of an enemy's air forces in the initial phase of war. It is vital, because, while it makes possible bold and devastating strokes at the heart of the enemy, it secures the national war potential against the grave danger of reprisals. The preservation of air superiority is, therefore, essential to the winning of a war.

The importance of this factor was amply illustrated during the last war; and no student of the science of war can deny that the period of continuous successes of the allies coincided with the period of their command of the air.

It can, therefore, be deduced that a nation's air forces will have to be superior in number, quality, and training to those of its potential enemies. This superiority can be ensured without much difficulty by any nation with a will to win.

Enemy's War Potential

Once air superiority has been established, the air forces can direct their attention to the destruction of the enemy's war potential. During the last war, the

allied air forces continued this task successfully owing to the fact that most of their targets were dispersed in such a way that they lent themselves to destruction. With the discovery of atomic weapons, the tendency in a future war may well be to build factories and plants underground, or to disperse them so widely that strategic bombing will be ineffective. If this happens, and there are reasons to believe that it will, it will be seen that air power alone will not be able to carry out effectively this task of strategic bombing which is essential to the winning of a war. One other factor which produces doubt as to the effectiveness of the air forces in respect to this task is the evolution of accurate antiaircraft weapons which would necessitate high-level flying and thus affect bombing accuracy.

Considering, therefore, the future trends in the technique of warfare, one is inclined to the view that the ability of air forces to execute this task effectively will be greatly limited.

Enemy's Will to Fight

The effect of heavy bombing on enemy morale depends on the character of the enemy. In England, the comparatively small-scale attacks by the German *Luftwaffe* had the general effect of strengthening morale. Moreover, production from the factories, instead of falling, went up. In Germany, however, after really heavy and continuous allied raids, although the people in the cities became desperate, they did not rise up against the Government in a bid for peace at any price. The Japanese, on the other hand, surrendered after two atom bombs had been used against them. Available evidence now shows that their decision to surrender had been made before these atomic attacks took place and that the use of this new weapon gave the Japanese leaders the necessary excuse for surrendering. While it cannot be denied that strategic bombing was very largely

responsible for breaking the will power of the defeated nations, there is no example during the last war of an enemy nation's will power being broken by strategic bombing alone.

Facilities for Air Operations

In order to carry out destruction of the enemy's homeland, it is necessary for the air forces to be provided with the following facilities:

1. *Long-range aircraft.*—In spite of the fact that aircraft with an extended range of operation have been produced, the increased fuel consumption of modern machines, combined with their restricted fuel-carrying capacity, will continue to limit their range. It is, therefore, possible that certain important areas in the enemy's homeland will remain out of the effective bombing range and thus escape destruction. To deal with these areas it will be necessary to have forward bases.

2. *Forward bases.*—The forward bases can be, depending upon the nature of the air task, of the following types: carrier bases or ground bases. If the first type is required, and as far as it can be seen at the moment it will be, then the navy will have to be retained. As far as the ground bases are concerned, they will have to be established in the enemy's homeland. Therefore, it follows that there must be somebody on the ground to capture and hold such bases.

3. *Administrative set-up.*—It will be possible for the air forces to provide their own administrative set-up at their home base. However, once the need arises to establish a forward base in the enemy's homeland, an administrative set-up involving the navy and army will become inescapable. In this connection, it may be argued that the administrative maintenance of the air forces at forward bases can be carried out by air; but it must not be forgotten that, since the object of war

is to enforce the national policy as economically as possible, such a course will obviously not be in keeping with that object.

From the foregoing arguments it follows that the air forces in a war will necessarily be dependent on certain other organized national forces on sea and land.

Exploitation by Ground Forces

Once the enemy's war potential has been weakened and his morale lowered, it is necessary that the situation be exploited by an organized body of men on the ground to ensure that the object of war, namely the enforcement of national policy, is fulfilled. It is, therefore, obvious that, in the last stages of war, it will be ground and not air forces that will be required to bring the aggression to an end and achieve the national object.

Conclusion

From the foregoing discussion, the only deduction that can be drawn is that, in the future, wars cannot be won by air power alone and that the days of the navy and the army are not numbered. The three services will be required to work as a team because:

1. In a future war the enemy's war potential may be widely dispersed and located underground and thus render strategic bombing ineffective.
2. Experience of the last war has shown that the will power of the defeated nations was not broken by strategic bombing alone.
3. The navy and the army are essential to hold forward bases for the air force and maintain them administratively.
4. The enforcement of national policy on the enemy is the task of ground forces.

The Lessons of Barbarossa

Digested by the MILITARY REVIEW from an article in "The Hawk," The Journal of the Royal Air Force Staff Colleges (Great Britain) December 1952.

WHEN the German invasion of the Soviet Union was launched on 22 June 1941, responsible and experienced opinion throughout the world considered that the campaign would be over in a matter of weeks, and that the Soviets would be hopelessly outclassed. "I suppose they will be rounded up in hordes," was the comment of the Chief of the Imperial General Staff which Mr. Churchill records in his history of World War II. The Germans certainly shared in this belief. Their victories on land prior to the invasion of the Soviet Union had given Hitler a false impression of the ability of his forces. They had never before been confronted by a major power disposing of a strong and efficient army all along the line against them. Their successes had been gained by *blitzkrieg* methods, supported by a war

industry planned in breadth rather than in depth. Hitler was, therefore, confident that the momentum and rapidity of the initial German drive would carry his forces through to Moscow and enable them to surround and cut up the armies that tried to bar their way. This led to the further belief that he could indulge in several major offensives at once, to the detriment of progress on the all-important central front.

Almost Captured Moscow

It is generally agreed that the Germans came very near to taking Moscow in 1941. The German General Staff had advocated an all-out offensive against this objective and, had Hitler not overruled them, the city might well have been captured; the southern and northern offensives could

then have followed in the spring with greatly enhanced prospects of success. As it was, Hitler was unable to appreciate that the *Wehrmacht* was approaching its first defeat. All his intelligence authorities tended to support his own vanity in maintaining that the Soviet soldier was no match for the German. The intelligence report issued to the German 22d Infantry Division on 8 June 1941 is illuminating:

Experience in Finland showed that Russian tank crews attack spiritedly. Battle training, especially co-operation of units with other arms, was insufficient. Tank maintenance was completely unsatisfactory. The numerous breakdowns are an especially difficult problem as the majority of troops are not capable of making repairs. . . . The Red Army is not fully adapted to modern demands and is not capable of standing up to a fast, modern, boldly led enemy. . . . The troops are not equal to the demands of modern attack. The initiative of the individual fighter will frequently be found wanting.

Colonel General Sepp Dietrich, commanding the 1st SS Panzer Division, was later to place on record a complete reversal of this opinion. The Soviets proved to be a more worthy opponent than had been bargained for. They did not get surrounded and cut to pieces in the initial stages—albeit they were perhaps assisted in avoiding this fate by poor appreciation of intelligence by the Soviet High Command. The very unpreparedness of the Soviet armies was their salvation. There were no big concentrations near the frontier to meet the Germans, and slowness of mobilization and transfer to the front of reserves—caused through an indifferent transportation system—kept the main Soviet armies out of reach of the enemy until such time as the initial impetus had gone from his attack. The Soviet generals were quick to appreciate that the old Russian tactic of trading space for troops still held good, thus keeping their armies-in-being ready for the time when the curve of the enemy's offensive took a downward trend. They were to prove themselves masters at the art of withholding their counteroffensives until the crucial moment.

German Intelligence Surprised

To aggravate the errors of the General Staff, German intelligence was constantly being surprised by the Soviets. The numbers of their tanks, guns, and other weapons, the quality of those weapons, and the existence of hitherto undisclosed armies frequently came as a shock to the German generals. In the field of Soviet equipment there was at first a very large gap between supply and demand, which would have been hard to fill without the magnificent and unstinting aid given by Great Britain and America. As soon as the Soviets had completed the Herculean task of moving their war factories behind the Urals, however, they were quickly able to step up production by extensive use of female, child, and forced labor. Design of equipment, particularly as regards winterization, was good and the finished products were of a high class. From then on the factories were able to keep the colossal Soviet armies supplied over a transportation system that proved adequate under the circumstances.

Initial German Aim

The initial German aim was to destroy or capture these armies. Large numbers of prisoners were claimed by the Germans in 1941 alone—large numbers, that is, by standards hitherto valid: 320,000 at Minsk in July, 310,000 at Smolensk in August, 665,000 at Kiev in September, 216,000 at Leningrad over a period of 2 months, and 650,000 in front of Moscow. Allowing for exaggerations by the German propagandists, this is still a formidable total. However, it represented a mere fraction of the total manpower available to the Soviets, who announced in October 1941 that Marshals Voroshilov and Budenny had been placed in charge of "new armies in the course of formation in the rear." This admittedly masked the replacement of these generals at the front by better men, but the new armies were real

enough and they were to appear on the scene later. Time and again the Germans genuinely thought that they had destroyed all resistance in front of them. Time and again they found themselves confronted by completely new formations, not battalions or regiments but divisions, brought up from the rear. In particular, the Russian counteroffensives at Moscow, in December 1941, and Stalingrad, in November 1942, came as staggering surprises to German intelligence, which had been sure that there was no danger. In both cases, the counterattack was put in with previously undetected troops, just as the Germans had committed all their reserves and their momentum was waning. At the end of the war the Soviets were thought to have 10 million men under arms; this preponderance of manpower enabled the Soviet Army to put in many and varied attacks co-ordinated on one front. The Germans, who were never fond of a static form of warfare, frantically hurled their reserves in to resist each attack as it occurred. When there were no more reserves, units under pressure were robbed of men to stem and attack elsewhere; they just could not meet all the demands.

Fatal Errors

German intelligence must, therefore, bear a large part of the responsibility for Hitler's failure in the Soviet Union. Mainly because the view taken by the Germans was much like that held in some quarters in this country at the time, a brief mention must also be made of yet another miscalculation by them. Hitler was informed that he would be welcomed as a liberator, certainly in White Russia. Whether this might have been the case or not, his handling of occupied territory put an end to these hopes, inasmuch as the Russian people were treated as low-grade animals, unfit to look after themselves. German commissars were set up in all captured districts or towns and the Russian people

were left in no doubt as to who was in charge. The result was that, far from welcoming their "liberators," they rallied to their flag in spite of their supposed animosity toward their own administration. The German armies were constantly harried in their rear and had to divert a considerable force to guard their lines of communication.

Hitler's Role

Perhaps the factor which weighed most heavily in the scales against the Germans was Hitler himself. He was so puffed up with the idea of German invincibility, and so certainly advised by his staff—on pain of instant dismissal—that he was right and that the Soviets could not stop the victorious march of the *Wehrmacht*, that he would tolerate no retreat. He was gifted with an unusual insight into his fellow men, and used that gift to start Germany on the road to conquest; he was also, perhaps, endowed with a certain grasp of short-range tactics. He could not, however, extend his range of vision beyond the immediate field under review and he blunted his senses by his egotism.

When the drive on Moscow in 1941 was not reinforced and winter arrived a month early, Von Bock advised withdrawal to a defensive line so that the winter, for which the German armies were so ill prepared, could be weathered. Hitler refused to hear of it and ordered the attack to proceed. When Moscow did not fall, Von Bock was dismissed and Hitler took his place himself. Meanwhile Von Rundstedt to the South had gained the Dnepr, his first objective. He was ordered to Stalingrad, 435 miles away, in winter! He got an armored spearhead as far as Rostov, but then found himself with a long exposed left flank and, on being heavily counterattacked, started to withdraw. In his customary way, Hitler ordered him to hold his ground and, when it was pointed out that a strategic retreat was essential, he conceded but

sacked Von Rundstedt. Many times Hitler ordered the impossible, overrode objections, and refused to allow ground to be given up. Von Paulus' desperate stand at Stalingrad is an example of the way in which the gallantry of the *Wehrmacht* and *Luftwaffe* was allowed to fritter itself away, in direct contrast to the earlier Soviet example of maintaining the army-in-being through strategic withdrawals. Von Halder, who was initially Hitler's chief of staff, gave an interesting sidelight on Hitler at his War Office interrogation in 1945. He said that when he tried to tell Hitler of the number of tanks and troops opposing him he "foamed at the mouth, threatened with his fists, and screamed at the top of his lungs." He went on to say, mildly, "any logical discussion was out of the question." With this type of man directing the battle, it is not surprising that the original German intention soon faded into the background. The attack on Moscow was dropped in 1942 in favor of the drive on the Caucasus, and that, in turn, was overshadowed by the frantic desire to capture Stalingrad. There was no hope of maintaining any continuity of strategy when all was subordinate to the ravings of a maniac.

Influence of Air Power

Finally in this analysis of factors bearing on the German defeat, the effect of British and American forces must be mentioned. The Soviets, for instance, never underwent strategic bombing attacks, and were able to keep their factories in the Urals going at full production without the restriction of blackout or interference from bomb damage. Their general transportation system was only bombed in the immediate battle zone and, although the Soviet railways are by no means complex, they proved themselves, with improvisation, adequate for the task imposed upon them. On the other hand, the Germans were undergoing a steadily increasing

weight of air attack. Their war machine was designed for short wars of the *blitzkrieg* variety. While this gave them a margin of nonessential industries upon which to draw for factory space, machine tools, and personnel to boost armament production, it was never able to meet the demands of a prolonged war of matériel in the face of air attack. We have Gen-



German troops moving up to take positions during the early phases of the campaign.

eral Guderian's own statement that in the summer of 1943, for instance, German tank production was on the decrease as a result of aerial bombing, and such huge losses as the 6,000 tanks destroyed or captured by the Soviets in the Ukraine at that time could not be replaced. Even though there was no second front in France, Hitler had let himself in for a war on two fronts. He was being hammered by the Soviets on the ground, and the Western allies from the air, besides which he had to keep considerable forces of all arms tied down in Europe against the threat of invasion. It has been estimated that one-

third of the German ground forces together with half their available tanks were so entailed, not to mention the very large numbers of aircraft and men required for the air defense of the *Reich*.

From all this the Soviet Union plainly emerges as a first-class military power, confounding the "experts" of 1941. She underwent a surprise attack by an aggressor at the height of his power, an aggressor who was able to pick his time and his allies, and who was already poised on a springboard of someone else's territory. The Soviet Union was ill prepared, in spite of the portents and warnings, for the attack, but she rallied and fought back to eventual victory with skill and determination. She is no longer to be lightly dismissed as a backward nation without ability or potential.

Defense versus Offense

It is tempting to draw the further general conclusion that defense is superior to the offense; all the pointers seem to lead to that end. The Soviets frequently executed strategic withdrawals on the defensive until the German attacks lost impetus. Then they counterattacked, drawing on their huge reserves for the purpose, with excellent results. Closer examination, however, will reveal the two prerequisites for the successful outcome of this form of warfare. The first is the strategic withdrawal, and here the Soviets were aided by Hitler himself. German offensives were resisted, it is true, by bitterly hard fighting, but also by steady withdrawal on the part of the Soviet armies, where this proved wisest in order to escape encirclement and destruction. The Germans then outran themselves and, although professing a mastery—even a monopoly—of the art of the war of movement, they were forbidden to execute strategic withdrawals themselves to stabilize their front and consolidate their gains. They were then open to the im-

pact of the second prerequisite: the huge Soviet reserves amounting to completely fresh armies. When these appeared on the battlefield without warning, and with well-calculated timing, their effect was overwhelming against a foe who was perpetually ordered to hold his present position at all costs. Thus the defensive use of the offense proved successful in these particular circumstances, where the enemy offensive was pressed beyond prudence and was ill directed from the highest level.

Soviet War Machine

The war, however, also revealed flaws in the Soviet war machine. The Germans, although in effect fighting on two fronts and suffering from an ever mounting strategic bombing attack, were very nearly able to achieve their aim without the use of a strategic air arm. The Soviet industrial system, and the somewhat sketchy transportation system on which it depends, offer an admirable target for adherents of De Seversky. One of the lessons which we can draw from a study of this Russo-German war is somewhat negative. The Soviets were nearly beaten without being subjected to strategic bombardment from the air. What would have been the result had the *Luftwaffe* possessed a good heavy bomber force and attacked the Soviet industrial and transport systems?

Intelligence

Finally, intelligence played, as usual, an important part in the war. It so happens that it was very bad, both strategically and tactically, on the German side. Moreover, when it was in a position to help, the war was being conducted by a man whose military ceiling was corporal, whatever his political ability, and not by the trained generals. Had intelligence been better, and had those in command appreciated it correctly, the issue might have been different.

The Future

The best use to which these lessons can be put will, of course, be in the unfortunate event of a war between the Western powers and the Soviet Union. We shall be outnumbered on the ground at the start, but the Soviet Union herself has shown what can be done to resist a powerful aggressor, she has shown the ways to combat the very tactics she will probably use: dogged fighting, adroit strategic withdrawals, and a large pool of reserves on which to draw for the counterattack. We have seen how intelligence played a vital part last time, and it is right to assume that it will do the same again. In view of our present unpreparedness and the necessity to build up our reserves of men in time to stem the tide, time will be vital and we must have every warning possible of the attack. Once in the fight, accurate information on the enemy will be of paramount importance, if we are to make the best use of our forces to hold the lines.

It will probably be said that we cannot hope to achieve parity in numbers with the Soviet Army, but parity is not what is necessary. It is unreasonable to suppose that the Western allies could put an army of 10 million men into the field to meet the Soviet Army on equal terms. Similarly, it would be idle to gamble on an internal rising in the Soviet Union to finish the war quickly for us. All history was confirmed by the German experience of 1941—such a thing does not happen in a country fighting for its existence. What we shall need, however, is sufficient numbers to halt the Soviet attack while we exploit the

“negative” lesson—the all-out heavy bomber offensive. Let nobody imagine that those numbers will be anything short of several million front-line men, something approaching the strength of the Germans in their attack of 1941, when they mustered some 164 divisions. We must make sure of halting, and not merely of slowing down, the Soviet advance, for the latter carries with it too great a risk. The negative lesson is not a proved one, and there is no knowing how long strategic bombing will take to achieve the Soviet Union's downfall—or even if it will achieve it at all.

Forewarned Is Forearmed

In sum, then, the Soviet Union is a formidable country, capable of putting huge numbers of men into the field. We have not, however, seen how her economic and industrial system will stand up under heavy aerial bombardment; it is here that our best chance of defeating her lies. Forewarned is forearmed, and we should ensure that our intelligence about the Soviet Union is as good as it can be—not only to avoid being caught unawares, but to be able to assess how best to attack her. Moreover, we must not be deluded by the theory that a token ground force will be able to hold off the Soviet armies while our air forces get to work. For absolute security, an allied army running into several million men must be ready to go into the field within a month of mobilization. Then, and only then, will the Western powers be able to use the full weight of their heavy bomber forces to bring the Soviet Union to her knees.

Combat is no longer a matter of sticks and stones, or of the deadly refinements of those crude weapons. It is a matter of steel and coal and oil, of great transportation systems, of factories and laboratories, of millions of men and women who wear no uniform.

Secretary of Defense Charles E. Wilson

BOOKS OF INTEREST TO THE MILITARY READER

ABRAHAM LINCOLN. By Benjamin P. Thomas. 548 Pages. Alfred A. Knopf, Inc., New York. \$5.75.

By CAPT JOHN J. VALLASTER, Jr., *Inf*

In this book, Benjamin P. Thomas, Secretary of the Abraham Lincoln Association of Springfield, Illinois, presents the first satisfactory one-volume life of Lincoln since Lord Charmwood's 1917 work, which was written before the estate of Robert Lincoln released many of the Lincoln papers.

Lincoln early decided on a political career. This was the formative period of his life and is covered in good detail and without idolization or attempt at justification of Lincoln's political failures. Most of his failures were due to his own personality. He was a human and realistic politician and his ultimate success and greatness stem from the fact that he profited by his earlier misfortunes.

The most critical period of Lincoln's life, the war years, is dealt with in not too much detail but with a slight tendency on the part of the author to overjustify some of Lincoln's decisions and actions. That Lincoln could maintain a level course of persistence and generosity in those turbulent times when he was beset on every side by incompetence, pressures of radical and selfish interests, and corruption attests to a greatness in humanity and character which will stand out forever.

A critical bibliography is appended which should be invaluable to the student of Lincoln.

GUYS ON ICE. By Lyman R. Ellsworth. 277 Pages. David McKay Company, Inc., New York. \$3.00.

By LT COL THOMAS O. BLAKENEY, *Armor*

This book will afford the reader a few hours of recreational reading. It contains an interesting story of one sergeant's problems during the "black days" immediately after the Pearl Harbor attack of 7 December 1941.

The author, then Army Sergeant Ellsworth, was sent to St. Paul in the Pribilof Islands as the commander of a small security force. St. Paul had no other human life, since all civilians had been evacuated. The problems of this remote detachment and their day-to-day existence provides an interesting and easily readable account of the many frustrations, mix-ups, and general confusion which existed, not only within this small detachment, but also within the higher command from which it was sent. As is usually the case, the lack of mail was a serious morale factor in this isolated garrison.

The author's description of the weather and terrain is both accurate and vivid and will cause many readers who served in the Aleutians or Bering Sea area to remember that bleak and weather-torn land.

PEACE, WAR AND YOU. By Jerome Davis. 279 Pages. Henry Schuman, Inc., New York. \$3.00.

STUDIO: ASIA. By John Groth. 208 Pages. The World Publishing Company, New York. \$4.95.

RED FLAG IN JAPAN. By Rodger Sweringen and Paul Langer. 276 Pages. Harvard University Press, Cambridge, Mass. \$5.00.

By LT COL RICHARD T. KNOWLES, *Arty*

Eminently qualified, the authors of this book have produced a literary composition of immeasurable value to the serious student of the Far East and to the free world dedicated to the task of stopping communism.

Here is a detailed account of the Communist Party from its birth in Japan until the present time. The first nine chapters deal with the problem up to and including World War II. The balance of the book covers communism during the postwar period. A complete bibliography and index are included.

It is recommended that the reader analyze the introduction with care, for it contains the key to the authors' purpose in writing this book as well as the importance of the Communist threat in Japan.

Dr. Edwin O. Reischauer states in his introduction "Despite all the evidence to the contrary, the Communists seem to remain convinced that their doctrine must triumph through the urban proletariat. Nowhere in Asia is there any great body of urban industrial workers except in Japan. To doctrinaire Communists, therefore, it would seem to be the key country, not merely because of its industrial strength and potential military power, but even more because they feel that logically it, above all other Asian countries, should be Communist." And again he says, "Nowhere else in Asia, perhaps in the whole world, is the complete story of communism so accessible as in Japan."

How fortunate we are that the Japanese police and other governmental agencies as well as occupation authorities maintained detailed records of the Communist activities.

From a study of these records and many official and nonofficial party histories, the authors wrote *Red Flag in Japan*.

The reader will be interested to know that both authors command the Japanese, Chinese, and Russian languages. They have spent considerable time in Japan as members of General MacArthur's staff and in private capacities.

Do you advocate outlawing the Communist Party in the United States or in other democratic countries of the world? The authors say, "The history of communism in Imperial Japan offers convincing proof that force alone can, at best, only temporarily solve the problem—and then at the cost of freedom and at the risk of producing latent revolutionary pressures.

"In an unstable Far East, where Communist aggression threatens the remaining free nations, such pressures, if allowed to accumulate, could prove beyond control."

The implications are clear and here in this volume we have an opportunity to study the history, techniques, and strategy of those who challenge our way of life.

GEORGE WASHINGTON. Victory With the Help of France. Volume V. By Douglas Southall Freeman. 570 Pages. Charles Scribner's Sons, New York. \$7.50.

By CAPT ADLER HAALAND, *Inf*

This volume of George Washington's life covers the period from 1778 to 1783; those years which tested Washington's strength and his determination to gain and to keep the independence of the colonies.

Mr. Freeman shows clearly what Washington was up against in his struggle for independence and portrays Washington's constant fight for proper food, clothing, and shelter for his troops.

The author depicts the lackadaisical attitude of the states in furnishing militiamen and stores for Washington's army; the petty jealousies of some of his general officers; and of his constant effort to have his army paid.

THE THIRD FORCE IN CHINA. By Carson Chang. 345 Pages. Bookman Associates, New York. \$4.50.

BY LT COL FRANCIS R. SULLIVAN, *CE*

The title of this book is similar to the title of many movies; it has only passing connection with the bulk of the work! As a matter of fact, except in the forward, there is little mention of the *third force*. The reader is soon convinced that the *third force* is only a loose philosophical movement just as nebulous as it was in 1946. At that time, when General Marshall left China, he felt that China's future as a genuine constitutional democracy lay in the emergence of a middle of the road political group—something between the totalitarian left and the totalitarian right. Unfortunately, this book indicates no such emergence. Mr. Chang's work only serves to point out that there is potentially such a group made up of those intellectuals who believe in the reign of law, human rights, and the dignity of the individual.

The book also presents other interesting aspects of the China scene. It gathers together, in a convenient way, a study of important historical events relating to the 30-year struggle between the Nationalists and the Communists. This summary indicates the effects of the foreign policies of certain nations toward China during this struggle. In particular it shows the impact of the Yalta agreements, the Marshall mediation mission, and the subsequent United States "hands-off" policy after 1947. This historical sketch develops the theme that the Communist conquest of China in 1949 was due to the post-World War II withdrawal of American support of the Nationalists and the concurrent intensification of Soviet support for the Chinese Communists.

While voicing considerable criticism of the regimes of both Mao and Chiang Kai-shek, the author, nevertheless, concludes that the free world under United States-

British Commonwealth leadership must support the only existing Chinese anti-Communist force—the Nationalist Government on Formosa—to separate mainland China militarily from the Soviet orbit. It is only in this way that China may ultimately achieve a truly constitutional democracy.

THE FORGOTTEN REPUBLICS. By Clarence A. Manning. 264 Pages. Philosophical Library, New York. \$2.75.

BY LT COL ALPO K. MARTINEN, *Inf*

The book tells the grim history of the three Baltic Republics, Estonia, Latvia, and Lithuania; their growth to independence after World War I and their subsequent fall as victims of the alliance of the two totalitarian systems of the Nazis and the Russian Communists.

After World War II, a ruthless Russification and Sovietization began. The Soviet Army troops burst out of control and discipline, killing, raping, and plundering the country. Later on the terrors were carried on in more organized forms. Hundreds of thousands of citizens were executed or condemned to deportation to Russian slave labor camps all around Russia, and large masses of Great Russians were moved in to take the place of the deported population. All forms of life, whatever they were, were Russified and communized. The book gives a striking example of what any nation has to expect under the Communist tyranny. It comes to the conclusion that peace and justice cannot be restored in the world before the free world returns to its old ideals of freedom and liberty, rejects the artificial "containment" pretext, expels the tyranny, and restores the freedom to all members of the free nations who are a part of their own body.

JAN CHRISTIAN SMUTS. By J. C. Smuts. 496 Pages. William Morrow and Company, Inc., New York. \$6.00.

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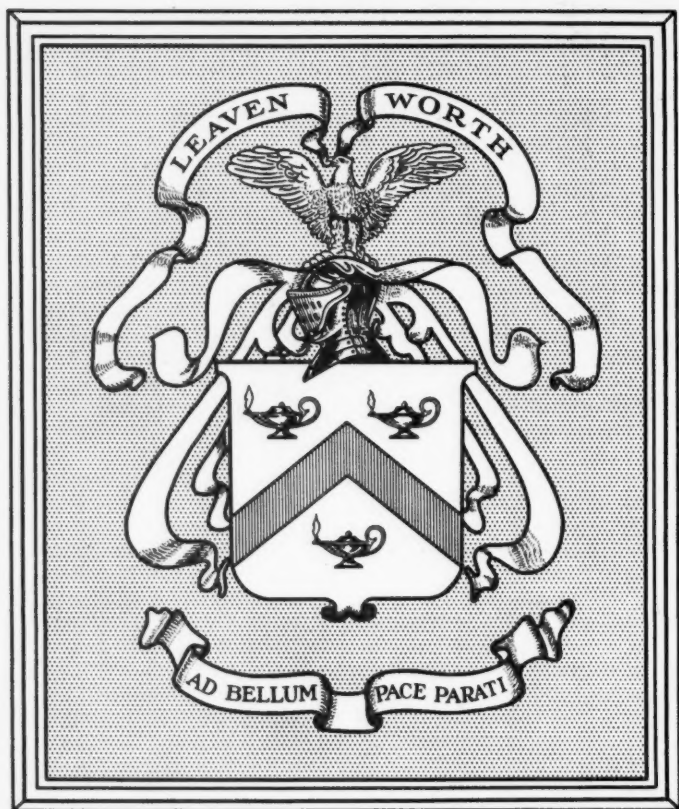
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